BEAM 9

Location	Station	Offset	Theoretical Grade Elevations	Theoretical Grade Elevations Adjusted For Dead Load Deflection
Bk. S. Abut.	919+15.79	52.46	731.11	731.11
℄ Brg. S. Abut	919+17.30	52.46	731.13	731.13
A	919+27.30	52.46	731.24	731.27
B	919+37.30	52.46	731.34	731.40
C	919+47.30	52.46	731.44	731.53
D	919+57.30	52.46	731.53	731.64
E	919+67.30	52.46	731.62	731.74
F	919+77.30	52.46	731.71	731.83
G	919+87.30	52.46	731.78	731.90
H	919+97.30	52.46	731.86	731.96
I	920+07.30	52.46	731.92	732.01
J	920+17.30	52.46	731.99	732.05
K	920+27.30	52.46	732.05	732.08
S. Brg. Pier	920+41.30	52.46	732.12	732.12
℄ Pier	920+42.30	52.46	732.12	732.12
N. Brg. Pier	920+43.30	52.46	732.13	732.13
L	920+53.30	52.46	732.17	732.20
M	920+63.30	52.46	732.21	732.27
N	920+73.30	52.46	732.25	732.33
O	920+83.30	52.46	732.28	732.38
P	920+93.30	52.46	732.30	732.41
Q	921+03.30	52.46	732.32	732.44
R	921+13.30	52.46	732.33	732.45
S	921+23.30	52.46	732.34	732.45
T	921+33.30	52.46	732.35	732.44
U	921+43.30	52.46	732.35	732.42
V	921+53.30	52.46	732.34	732.38
℄ Brg. N. Abut	921+67.30	52.46	732.32	732.32
Bk. N. Abut.	921+68.82	52.46	732.32	732.32

KNIGHT
Engineers & Architects

		DESIGNED - WPM	REVISED
		CHECKED - TB	REVISED
SCALE - NONE		DRAWN - TB	REVISED
DATE - 10/15/2012		CHECKED - WPM	REVISED

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

TOP OF SLAB ELEVATIONS (NB)
S.N. 022-2029 (SB) TOLLWAY B.N. 826
S.N. 022-2030 (NB) TOLLWAY B.N. 825
SHEET NO. SA-17 OF 63 SHEETS

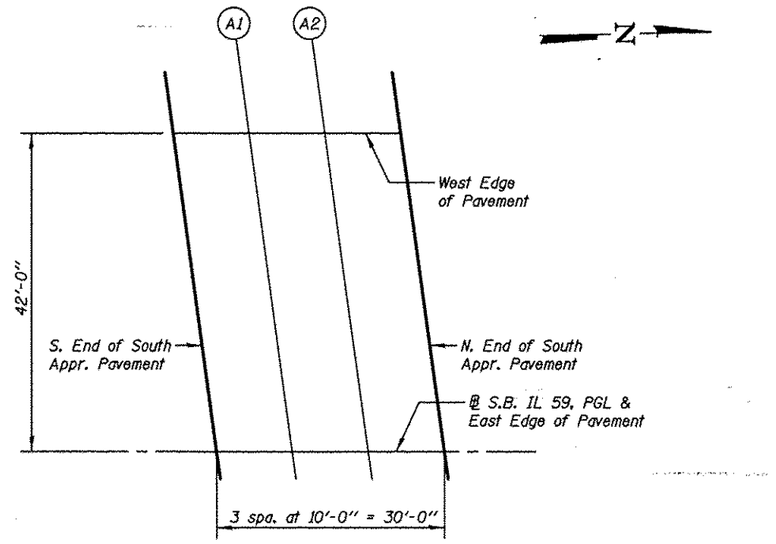
F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
338	(112 & 113) WRS-5	DUPAGE	963	601
		CONTRACT NO. 60131		
	ILLINOIS FED. AID PROJECT			

WEST EDGE OF PAVEMENT

Location	Station	Offset	Theoretical Grade Elevations
S. End South Appr. Pav't.	818+99.65	-42.00	730.84
A1	819+09.65	-42.00	730.96
A2	819+19.65	-42.00	731.08
N. End South Appr. Pav't	819+29.65	-42.00	731.18

℄ SB IL 59, PROFILE GRADE LINE & EAST EDGE OF PAVEMENT

Location	Station	Offset	Theoretical Grade Elevations
S. End South Appr. Pav't.	819+05.39	0.00	730.04
A1	819+15.39	0.00	730.15
A2	819+25.39	0.00	730.26
N. End South Appr. Pav't	819+35.39	0.00	730.37



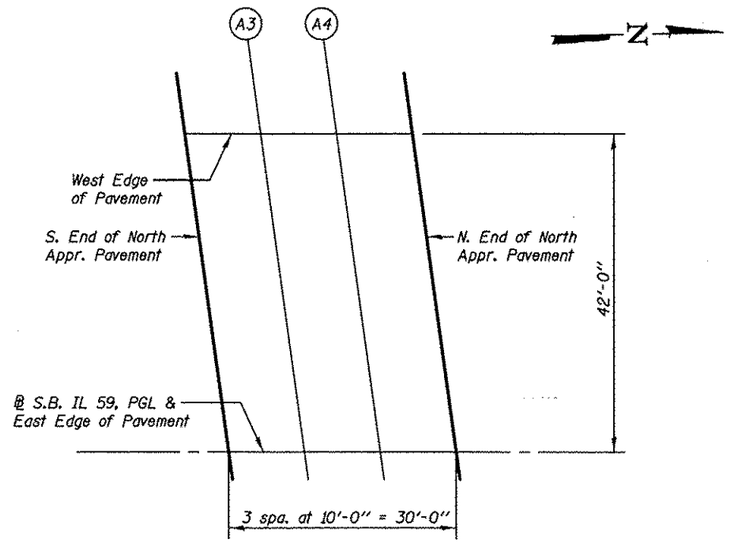
PLAN
South Approach (SB)

WEST EDGE OF PAVEMENT

Location	Station	Offset	Theoretical Grade Elevations
S. End North Appr. Pav't.	821+82.68	-42.00	732.25
A3	821+92.68	-42.00	732.23
A4	822+02.68	-42.00	732.20
N. End North Appr. Pav't	822+12.68	-42.00	732.16

℄ SB IL 59, PROFILE GRADE LINE & EAST EDGE OF PAVEMENT

Location	Station	Offset	Theoretical Grade Elevations
S. End North Appr. Pav't.	821+88.42	0.00	731.36
A3	821+98.42	0.00	731.34
A4	822+08.42	0.00	731.30
N. End North Appr. Pav't	822+18.42	0.00	731.27



PLAN
North Approach (SB)

KNIGHT
Engineers & Architects

		DESIGNED - WPM	REVISED
		CHECKED - TB	REVISED
SCALE - NONE		DRAWN - TB	REVISED
DATE - 10/15/2012		CHECKED - WPM	REVISED

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

TOP OF APPROACH SLAB ELEVATIONS (SB)
S.N. 022-2029 (SB) TOLLWAY B.N. 826
S.N. 022-2030 (NB) TOLLWAY B.N. 825
SHEET NO. SA-18 OF 63 SHEETS

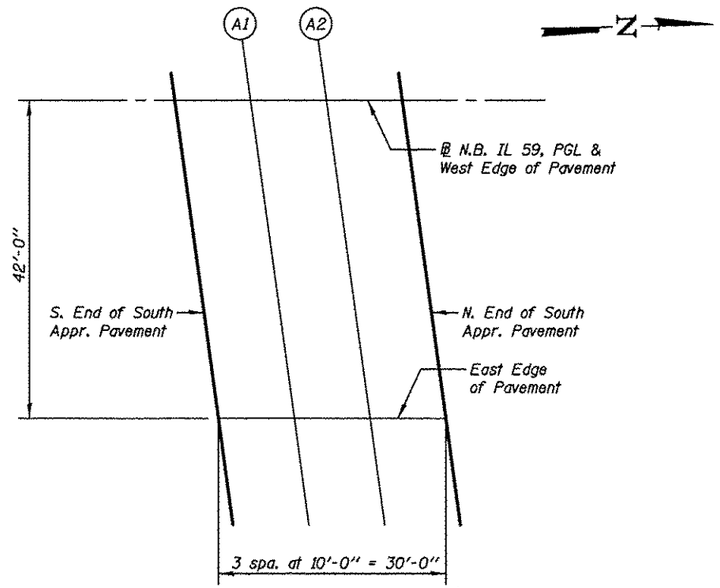
F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
338	(112 & 113) WRS-5	DUPAGE	963	602
		CONTRACT NO. 60131		
	ILLINOIS FED. AID PROJECT			

@ NB IL 59, PROFILE GRADE LINE & WEST EDGE OF PAVEMENT

Location	Station	Offset	Theoretical Grade Elevations
S. End South Appr. Pav't.	918+78.61	0.00	729.57
A1	918+88.61	0.00	729.70
A2	918+98.61	0.00	729.82
N. End South Appr. Pav't	919+08.61	0.00	729.94

EAST EDGE OF PAVEMENT

Location	Station	Offset	Theoretical Grade Elevations
S. End South Appr. Pav't.	918+84.36	42.00	730.52
A1	918+94.36	42.00	730.65
A2	919+04.36	42.00	730.77
N. End South Appr. Pav't	919+14.36	42.00	730.88



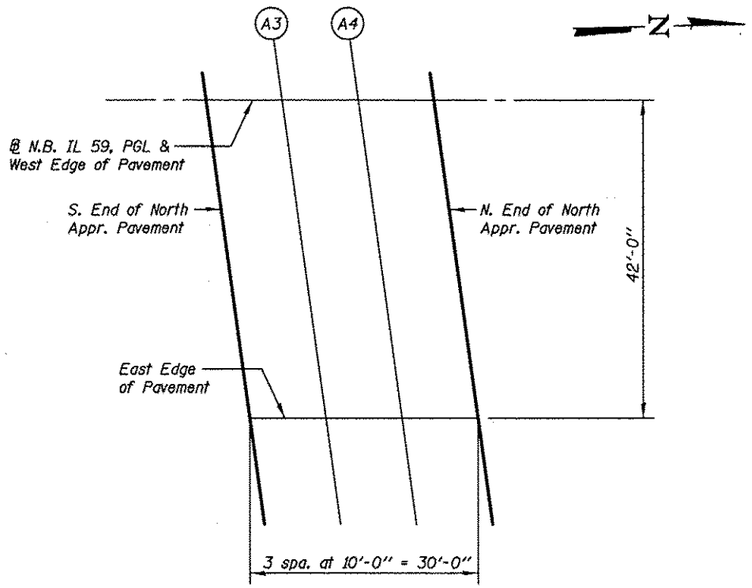
PLAN
South Approach (NB)

@ NB IL 59, PROFILE GRADE LINE & WEST EDGE OF PAVEMENT

Location	Station	Offset	Theoretical Grade Elevations
S. End North Appr. Pav't.	921+61.64	0.00	731.24
A3	921+71.64	0.00	731.22
A4	921+81.64	0.00	731.20
N. End North Appr. Pav't	921+91.64	0.00	731.18

EAST EDGE OF PAVEMENT

Location	Station	Offset	Theoretical Grade Elevations
S. End North Appr. Pav't.	921+67.38	42.00	732.11
A3	921+77.38	42.00	732.09
A4	921+87.38	42.00	732.06
N. End North Appr. Pav't	921+97.38	42.00	732.04



PLAN
North Approach (NB)

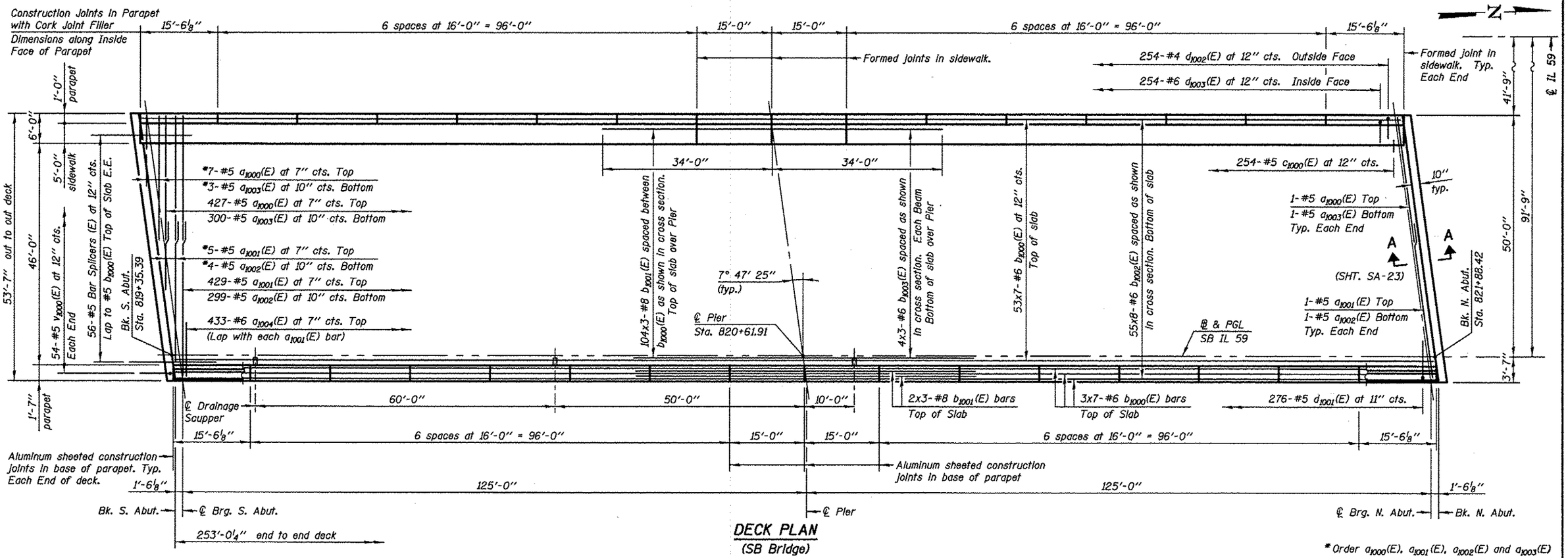
KNIGHT
Engineers & Architects

		DESIGNED - WPM	REVISED
		CHECKED - TB	REVISED
SCALE - NONE		DRAWN - TB	REVISED
DATE - 10/15/2012		CHECKED - WPM	REVISED

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

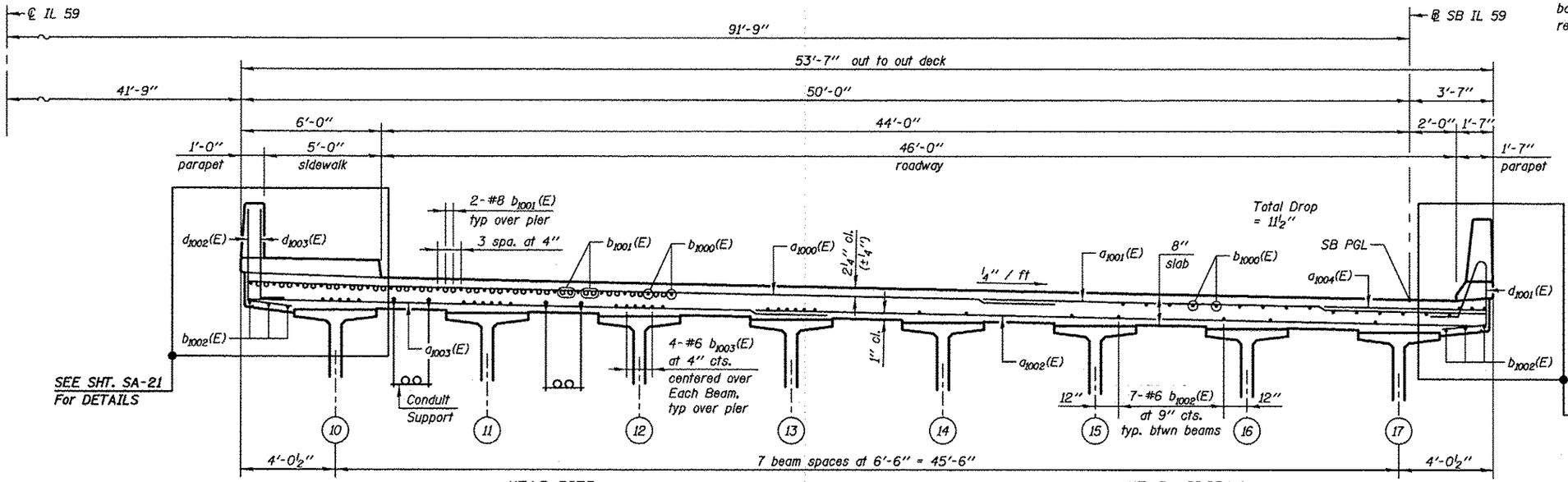
TOP OF APPROACH SLAB ELEVATIONS (NB)
S.N. 022-2029 (SB) TOLLWAY B.N. 826
S.N. 022-2030 (NB) TOLLWAY B.N. 825
SHEET NO. SA-19 OF 63 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
338	(112 & 113) WRS-5	DUPAGE	963	603
		CONTRACT NO. 60131		
	ILLINOIS FED. AID PROJECT			



DECK PLAN
(SB Bridge)

* Order $a_{1000}(E)$, $a_{1001}(E)$, $a_{1002}(E)$ and $a_{1003}(E)$ bars full length. Cut to fit skew and use remainder of bars in opposite end.



CROSS SECTION
(Looking North)

Notes:

Bars indicated thus 20 x 3-#5 etc. indicates 20 lines of bars with 3 lengths per line.

See Sheet SA-21 for Sidewalk and Parapet Details

See Sheet SA-22 for East Parapet Details

See Sheet SA-24 for Deck Misc. Details and Bill of Material.

See Sheet SA-24 for Conduit Support Details

See Sheet SA-36 for Drainage Scupper Details.

MIN. BAR LAPS:

#5 = 3'-3"
#6 = 3'-10"
#8 = 6'-9"

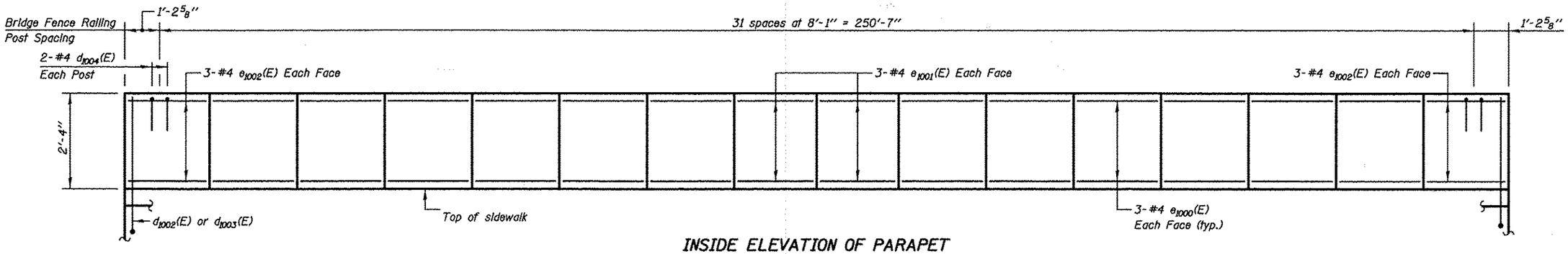
KNIGHT
Engineers & Architects

		DESIGNED - WPM	REVISED
		CHECKED - TB	REVISED
SCALE - NONE		DRAWN - TB	REVISED
DATE - 10/15/2012		CHECKED - WPM	REVISED

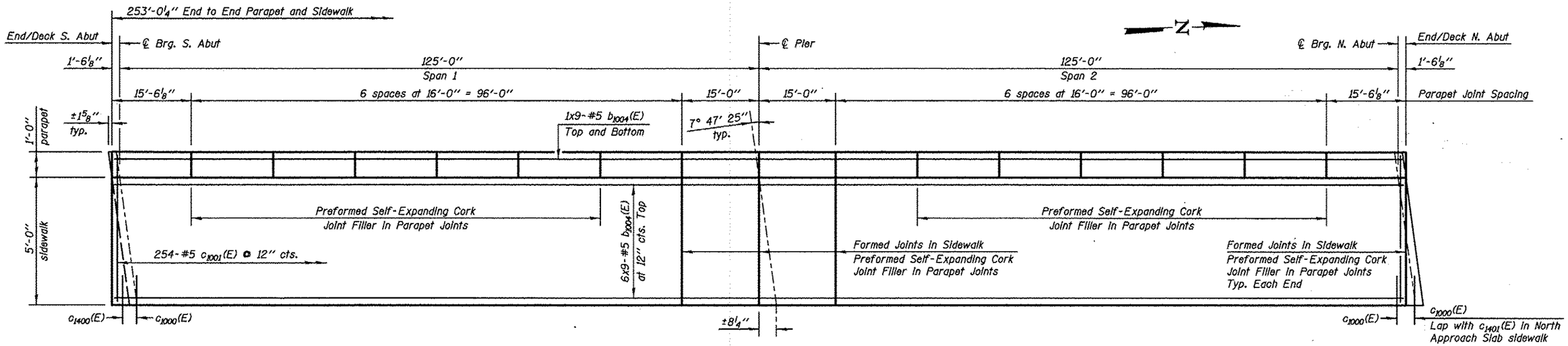
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

DECK PLAN AND CROSS SECTION (SB)
S.N. 022-2029 (SB) TOLLWAY B.N. 826
S.N. 022-2030 (NB) TOLLWAY B.N. 825
SHEET NO. SA-20 OF 63 SHEETS

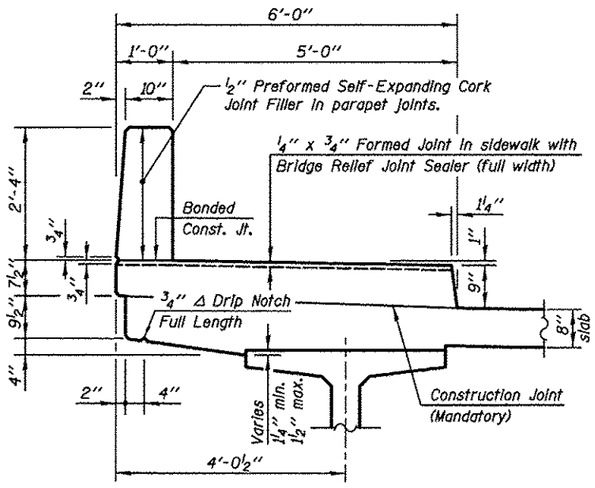
F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
338	(112 & 113) WRS-5	DUPAGE	963	604
		CONTRACT NO. 60131		
ILLINOIS	FED. AID PROJECT			



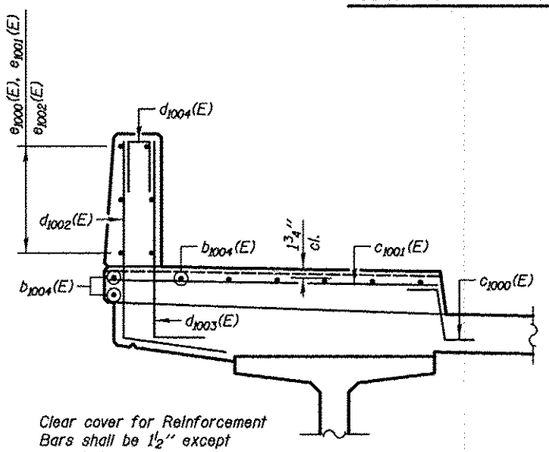
INSIDE ELEVATION OF PARAPET



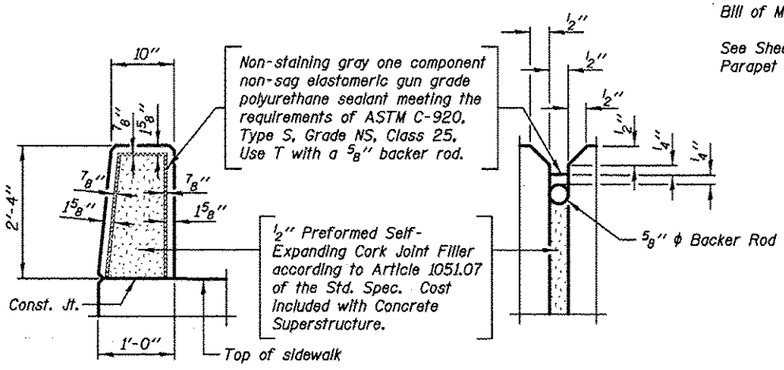
SIDEWALK - PARTIAL PLAN



SECTION THRU SIDEWALK & PARAPET
(Showing Dimensions)



SECTION THRU SIDEWALK & PARAPET
(Showing Reinforcement Bars)



PARAPET JOINT DETAILS

Notes:

Bars indicated thus 20 x 3-#5 etc. indicates 20 lines of bars with 3 lengths per line.

See Sheet SA-24 for Deck Misc. Details and Bill of Materials.

See Sheet SA-38 for Bridge Fence Railing, Parapet Mounted Details

MIN. BAR LAPS:

#5 = 3'-3"

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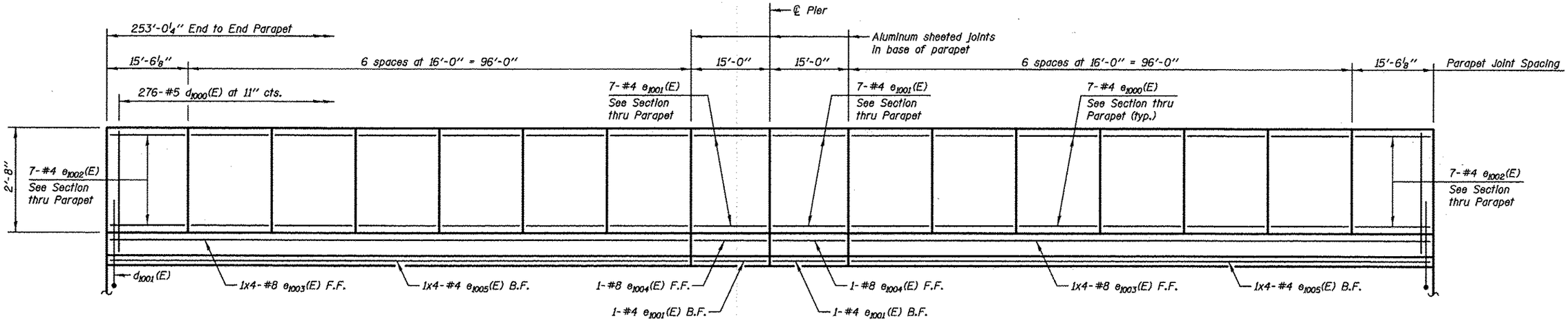
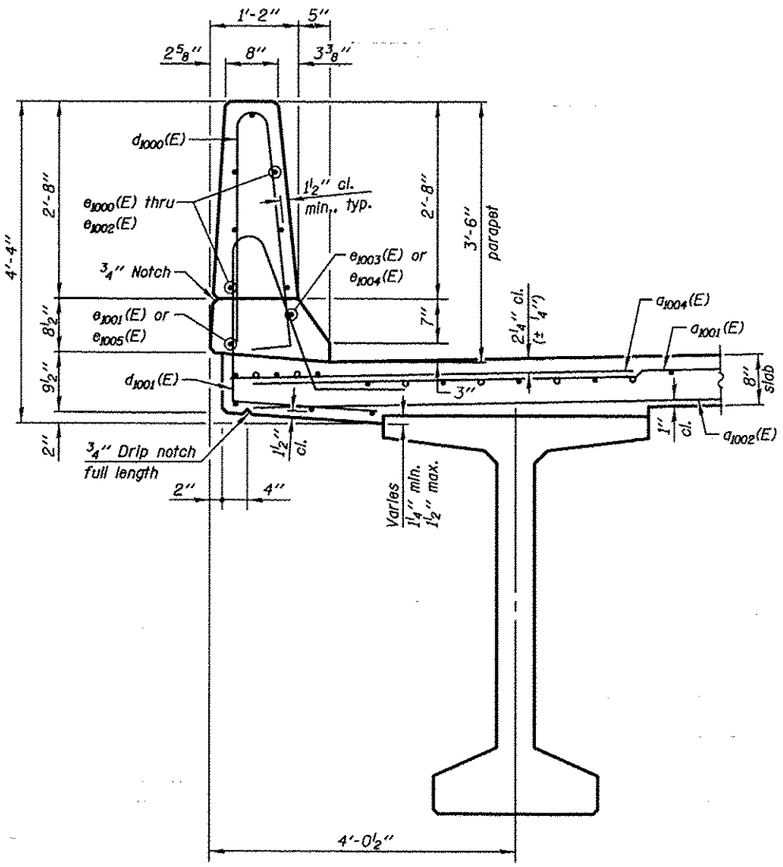
	SCALE - NONE	DRAWN - TB	REVISED	
	DATE - 10/15/2012	CHECKED - WPM	REVISED	

SIDEWALK AND PARAPET DETAILS (SB)
S.N. 022-2029 (SB) TOLLWAY B.N. 826
S.N. 022-2030 (NB) TOLLWAY B.N. 825
SHEET NO. SA-21 OF 63 SHEETS

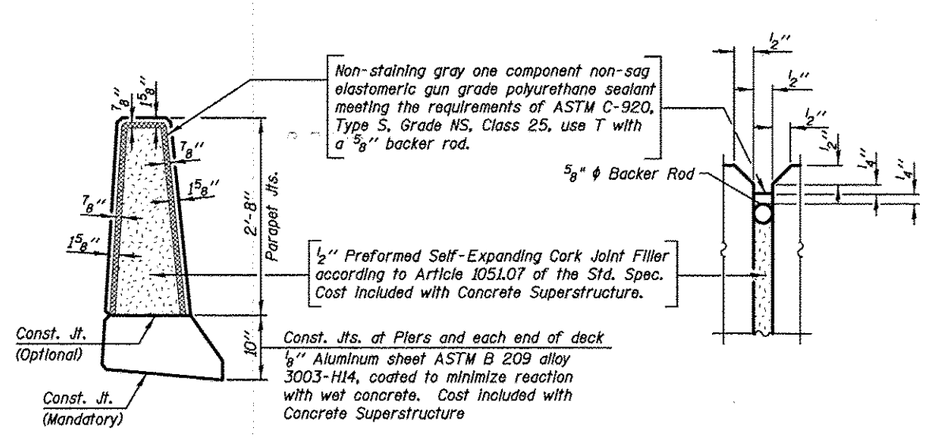
F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
338	(112 & 113) WRS-5	DUPAGE	963	605
		CONTRACT NO. 60131		
	ILLINOIS FED. AID PROJECT			



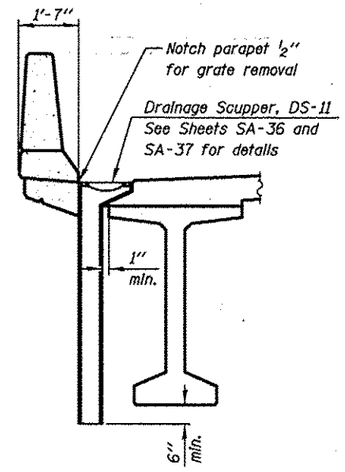
INSIDE ELEVATION OF EAST PARAPET



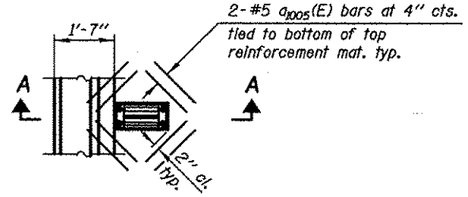
SECTION THRU PARAPET



PARAPET JOINT DETAILS



SECTION A-A



PLAN

Note:
Cut longitudinal reinforcement to clear drainage scuppers.

Notes:

Bars indicated thus 20 x 3-#5 etc. indicates 20 lines of bars with 3 lengths per line.

See Sheet SA-24 for Deck Misc. Details and Bill of Materials.

MIN. BAR LAPS:
#4 = 2'-4"
#8 = 5'-5"

KNIGHT Engineers & Architects		DESIGNED - WPM	REVISED	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION
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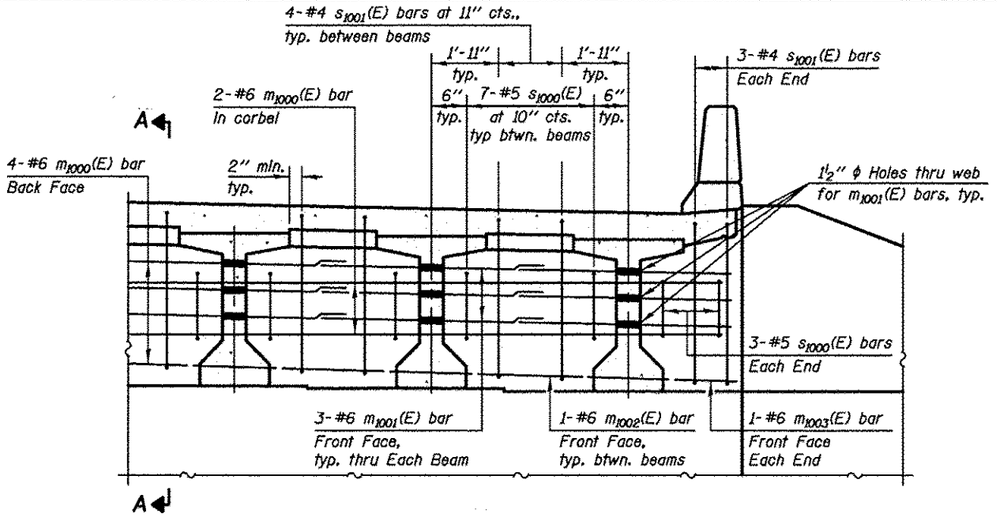
	SCALE - NONE	DRAWN - TB	REVISED	
	DATE - 10/15/2012	CHECKED - WPM	REVISED	

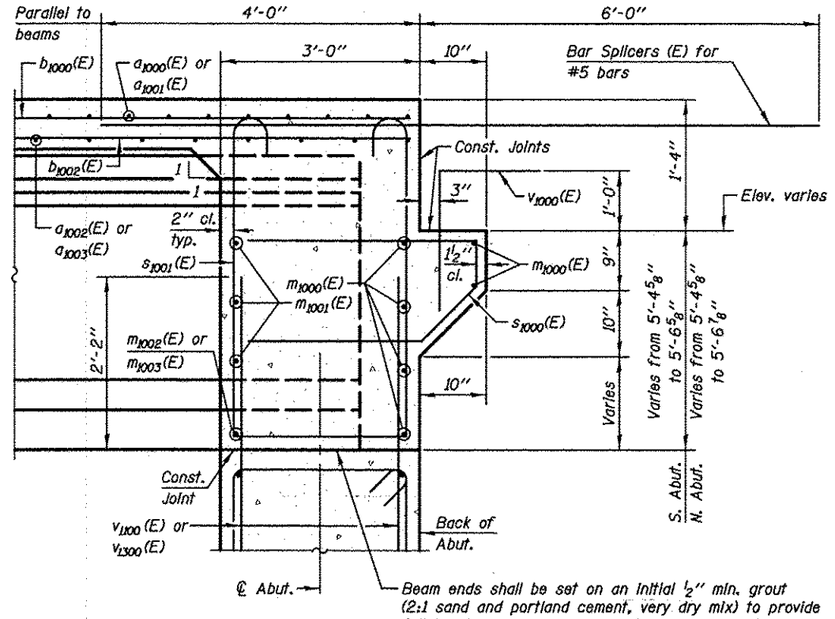
EAST PARAPET DETAILS (SB)
S.N. 022-2029 (SB) TOLLWAY B.N. 826
S.N. 022-2030 (NB) TOLLWAY B.N. 825
SHEET NO. SA-22 OF 63 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
338	(112 & 113) WRS-5	DUPAGE	963	606
		CONTRACT NO. 60131		
	ILLINOIS FED. AID PROJECT			



DIAPHRAGM ELEVATION AT ABUTMENT

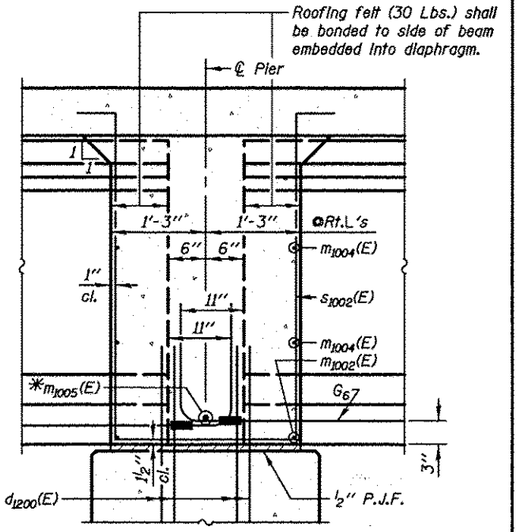
MIN. BAR LAP
#6 bar = 3'-4"



Beam ends shall be set on an initial ½" min. grout (2:1 sand and portland cement, very dry mix) to provide full bearing. Any excess grout squeezed out from under the beam shall be removed. Cost included with Concrete Structures.

SECTION A-A

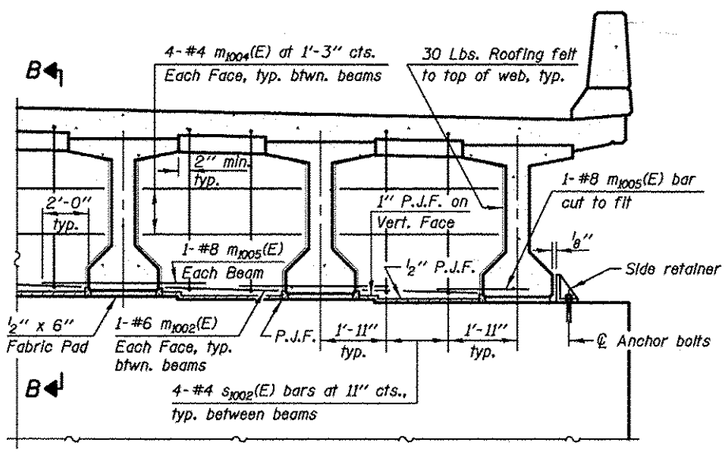
Dimensions at right angles to abutment, except as shown.



SECTION B-B

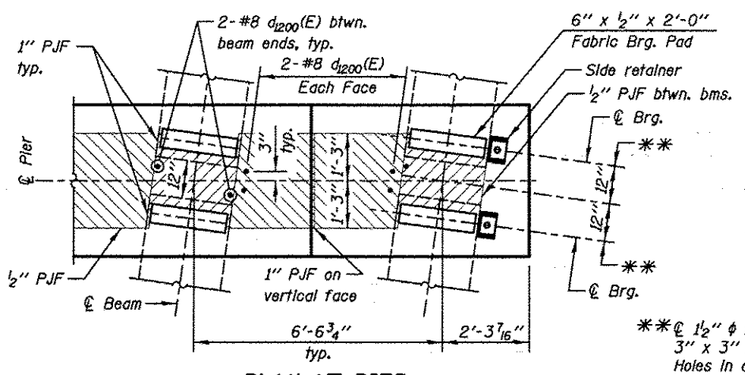
Dimensions along ℄ of beam, except as shown.

*Tightly fasten the #8 bars together with No. 9 wire ties.



DIAPHRAGM AT PIER

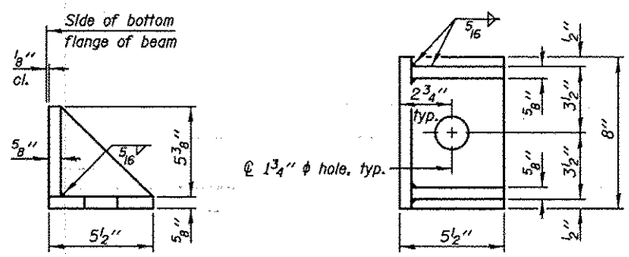
Place 4- 5" I.D. conduit sleeves thru pier diaphragm. Coordinate location with TRAFFIC SIGNAL PLANS. Coring of holes thru pier diaphragm will not be allowed. Cost of sleeves is included with Concrete Superstructure.



PLAN AT PIER

(Showing bearing pad and PJF details)

**℄ 1½" ϕ x 18" Anchor bolts with 3" x 3" x 5/16" ℄ washer under nut. Holes in cap to be formed or drilled after beams are in place but prior to pouring concrete diaphragm.



SIDE RETAINER

(2 required each side of pier)
Equivalent rolled angle with stiffeners will be allowed in lieu of welded plates.

Notes:

Reinforcement bars in diaphragm are billed with superstructure on Sheet SA-24.

Concrete in diaphragm is included with Concrete Superstructure on Sheet SA-24.

The s_{1000}(E), s_{1001}(E) and s_{1002}(E) bars shall be placed parallel to the beams. Spacing for these bars shall be at right angles to the beams.

Cost of 30 Lb. roofing felt is included with Concrete Superstructure.

The side retainer shall be galvanized after shop fabrication according to AASHTO M 111. Cost of side retainer and anchor bolts shall be included with Concrete Structures.

Anchor bolt assemblies shall be galvanized according to Article 1006.09 of the Standard Specifications.

Anchor bolts shall be ASTM F1554 all-thread (or an Engineer-approved alternate material) of the grade(s) and diameter(s) specified. ASTM A307 Grade C anchor bolts may be used in lieu of ASTM F1554 Grade 36 (Fy = 36 ksi). The corresponding specified grade of AASHTO M314 anchor bolts may be used in lieu of ASTM F1554.

Anchor bolts for side retainers may be cast in place or installed in holes drilled before or after members are in place.

Drilled and set anchor bolts shall be installed according to Article 521.06 of the Standard Specifications.

KNIGHT
Engineers & Architects

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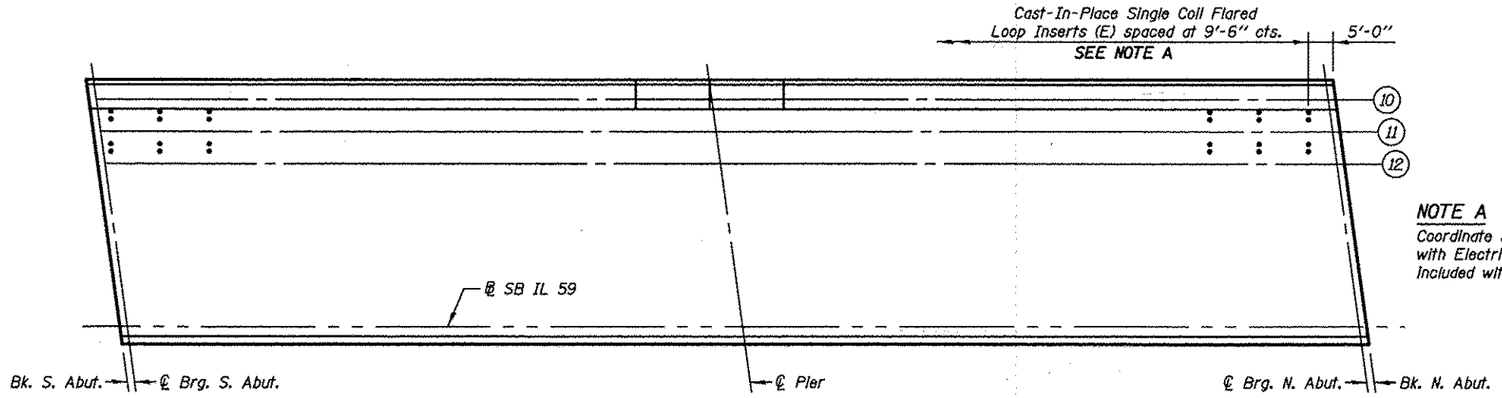
		CHECKED - TB	REVISED
SCALE - NONE		DRAWN - TB	REVISED
DATE - 10/15/2012		CHECKED - WPM	REVISED

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

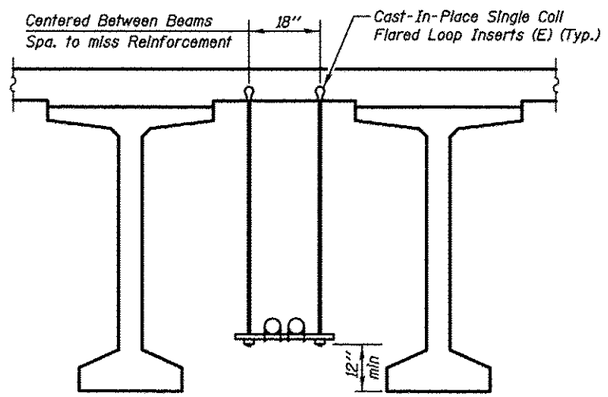
DECK DIAPHRAGM DETAILS (SB)
S.N. 022-2029 (SB) TOLLWAY B.N. 826
S.N. 022-2030 (NB) TOLLWAY B.N. 825
SHEET NO. SA-23 OF 63 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
338	(112 & 113) WRS-5	DUPAGE	963	607
		CONTRACT NO. 60131		
	ILLINOIS FED. AID PROJECT			

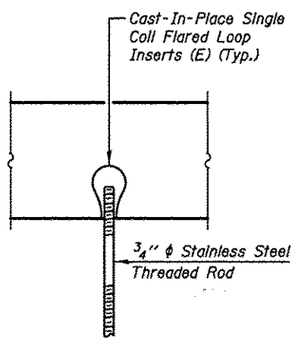


CONDUIT SUPPORT PLAN
(SB Bridge)

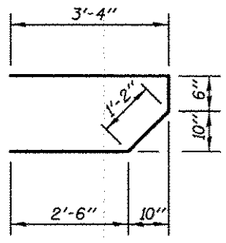
NOTE A
Coordinate single coil flared loop inserts with Electrical Contractor. Cost shall be included with Concrete Superstructure.



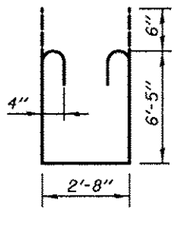
CONDUIT SUPPORT DETAIL



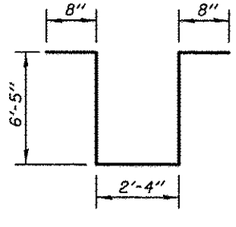
THREADED COIL LOOP INSERTS DETAIL



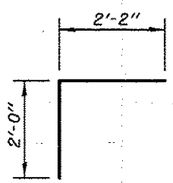
BAR $s_{1000}(E)$



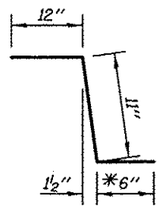
BAR $s_{1001}(E)$



BAR $s_{1002}(E)$

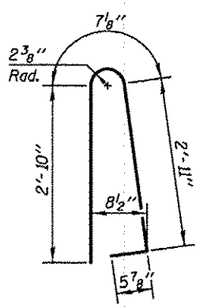


BAR $v_{1000}(E)$

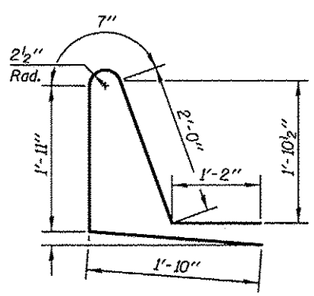


BAR $c_{1000}(E)$

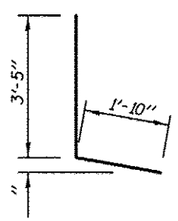
*In lieu of bottom leg, $c_{1000}(E)$ bars may be cored and set according to Article 509.06 of the Standard Specifications. Cored holes shall be roughened or scored per manufacturer's recommendations. Maximum depth of cored hole shall not exceed 6".



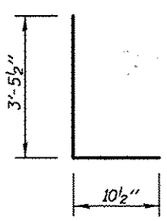
BAR $d_{1000}(E)$



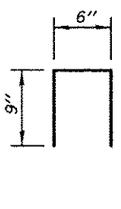
BAR $d_{1001}(E)$



BAR $d_{1002}(E)$



BAR $d_{1003}(E)$



BAR $d_{1004}(E)$

BILL OF MATERIAL

BAR	NO.	SIZE	LENGTH	SHAPE
a1000(E)	436	#5	34'-0"	
a1001(E)	436	#5	22'-0"	
a1002(E)	305	#5	31'-6"	
a1003(E)	305	#5	25'-0"	
a1004(E)	433	#6	6'-6"	
a1005(E)	24	#5	1'-6"	
b1000(E)	392	#6	39'-6"	
b1001(E)	318	#8	27'-3"	
b1002(E)	440	#6	35'-0"	
b1003(E)	96	#6	25'-3"	
b1004(E)	72	#5	31'-0"	
c1000(E)	254	#5	2'-5"	
c1001(E)	254	#5	5'-8"	
d1000(E)	276	#5	6'-10"	
d1001(E)	276	#5	7'-6"	
d1002(E)	254	#4	5'-3"	
d1003(E)	254	#6	4'-4"	
d1004(E)	64	#4	2'-0"	
e1000(E)	156	#4	15'-8"	
e1001(E)	28	#4	14'-8"	
e1002(E)	26	#4	15'-2"	
e1003(E)	8	#8	32'-0"	
e1004(E)	2	#8	14'-8"	
e1005(E)	8	#4	29'-9"	
m1000(E)	24	#6	28'-9"	
m1001(E)	48	#6	10'-3"	
m1002(E)	28	#6	4'-1"	
m1003(E)	4	#6	2'-7"	
m1004(E)	56	#4	5'-9"	
m1005(E)	8	#8	6'-2"	
s1000(E)	110	#5	7'-6"	
s1001(E)	68	#4	16'-6"	
s1002(E)	28	#4	16'-6"	
v1000(E)	108	#5	4'-2"	
Reinforcement Bars, Epoxy Coated			LB	139890
Concrete Superstructure			Cu. Yd.	593.0
Bridge Deck Grooving			Sq. Yd.	1237.0
Protective Coat			Sq. Yd.	1666.0

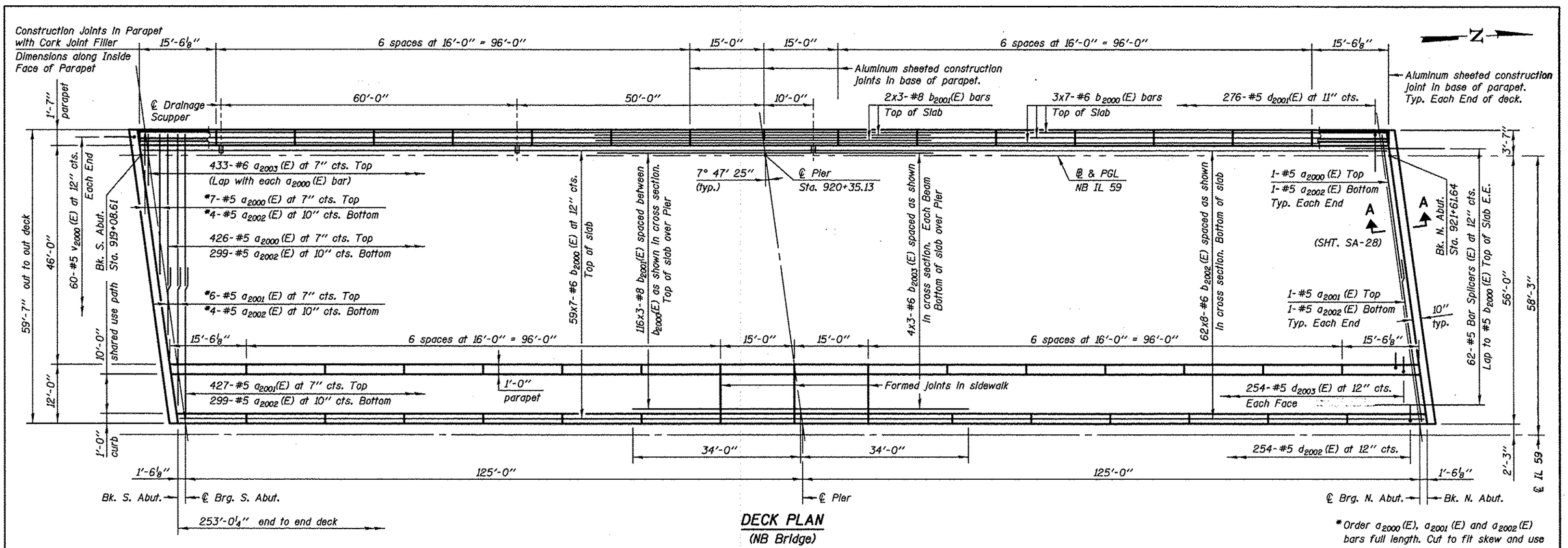
KNIGHT
Engineers & Architects

		DESIGNED - WPM	REVISED
		CHECKED - TB	REVISED
SCALE - NONE		DRAWN - TB	REVISED
DATE - 10/15/2012		CHECKED - WPM	REVISED

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

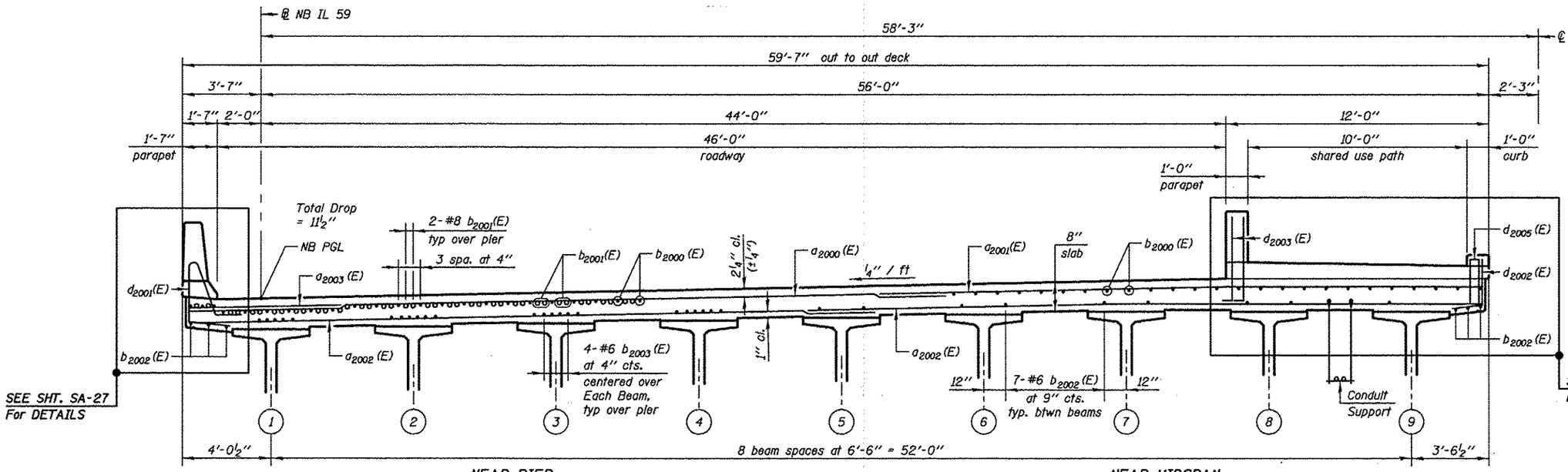
DECK MISCELLANEOUS DETAILS (SB)
S.N. 022-2029 (SB) TOLLWAY B.N. 826
S.N. 022-2030 (NB) TOLLWAY B.N. 825
SHEET NO. SA-24 OF 63 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
338	(112 & 113) WRS-5	DUPAGE	963	608
		CONTRACT NO. 60131		
	ILLINOIS FED. AID PROJECT			



DECK PLAN
(NB Bridge)

*Order a_{2000}(E), a_{2001}(E) and a_{2002}(E) bars full length. Cut to fit skew and use remainder of bars in opposite end.



CROSS SECTION
(Looking North)

Notes:

Bars indicated thus 20 x 3-#5 etc. indicates 20 lines of bars with 3 lengths per line.

See Sheet SA-26 for Shared Use Path and Parapet Details

See Sheet SA-27 for West Parapet Details

See Sheet SA-29 for Deck Misc. Details and Bill of Material.

See Sheet SA-29 for Conduit Support Details

See Sheet SA-36 for Drainage Scupper Details.

MIN. BAR LAPS:

#5 = 3'-3"
#6 = 3'-10"
#8 = 6'-9"

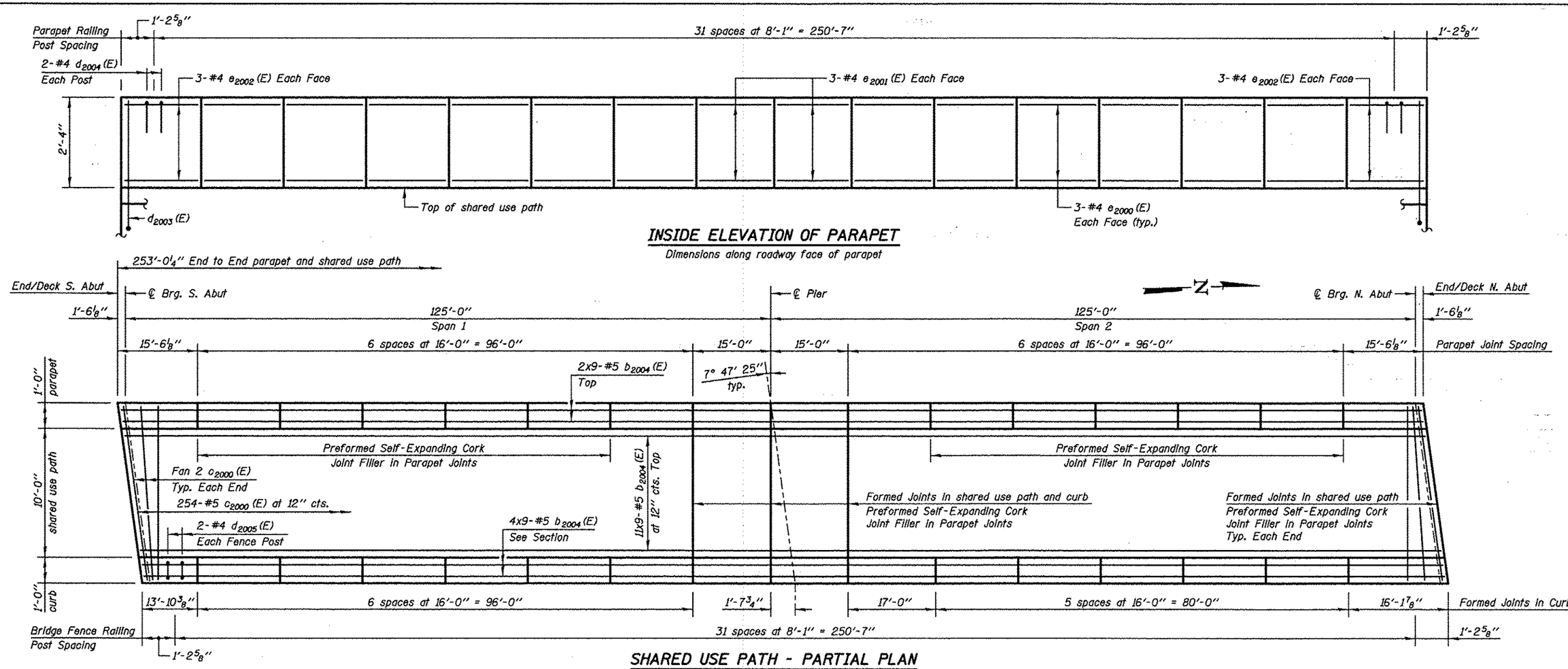
KNIGHT Engineers & Architects

		DESIGNED - WPM	REVISED
		CHECKED - TB	REVISED
SCALE - NONE		DRAWN - TB	REVISED
DATE - 10/15/2012		CHECKED - WPM	REVISED

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

DECK PLAN AND CROSS SECTION (NB)
S.N. 022-2029 (SB) TOLLWAY B.N. 826
S.N. 022-2030 (NB) TOLLWAY B.N. 825
SHEET NO. SA-25 OF 63 SHEETS

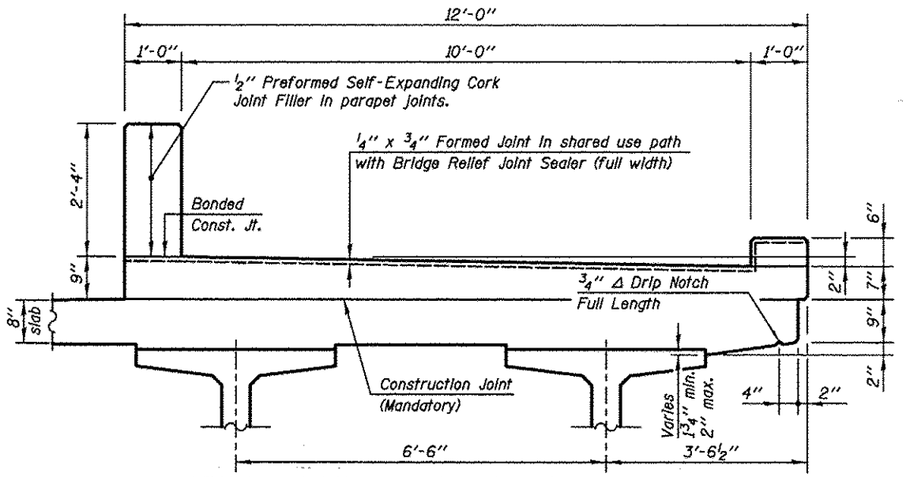
F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
338	(112 & 113) WRS-5	DUPAGE	963	609
		CONTRACT NO. 60131		
	ILLINOIS FED. AID PROJECT			



INSIDE ELEVATION OF PARAPET

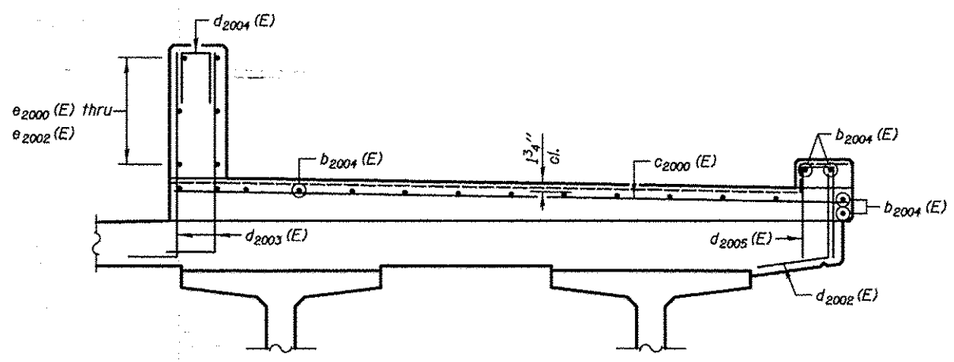
Dimensions along roadway face of parapet

SHARED USE PATH - PARTIAL PLAN



SECTION THRU SHARED USE PATH AND PARAPET

(Showing Dimensions)



SECTION THRU SHARED USE PATH AND PARAPET

(Showing Reinforcement Bars)

Notes:

Bars indicated thus 20 x 3-#5 etc. indicates 20 lines of bars with 3 lengths per line.

See Sheet SA-29 for Cork Filled Parapet Joint Detail

See Sheet SA-29 for Deck Misc. Details and Bill of Materials.

See Sheet SA-38 for Bridge Fence Railing, Sidewalk Mounted Details

MIN. BAR LAPS:

#5 = 3'-3"

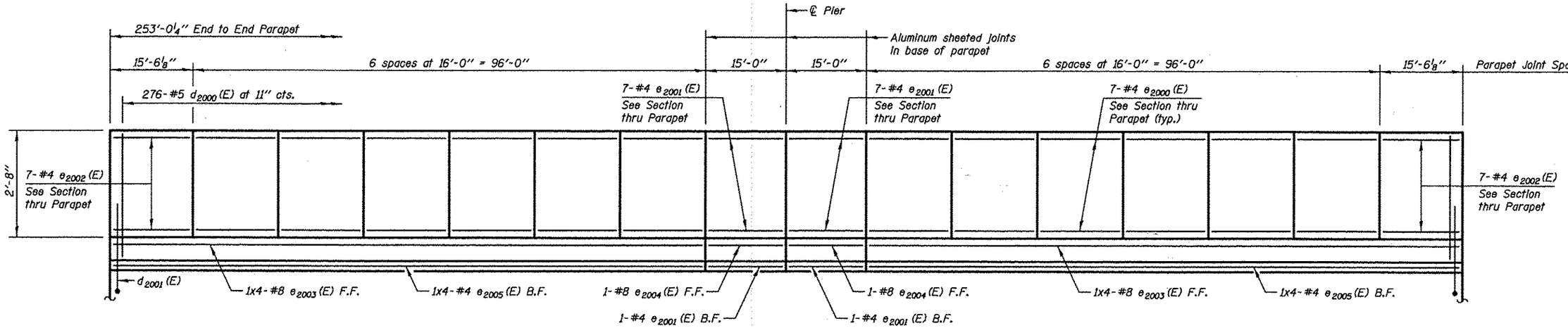
KNIGHT Engineers & Architects

		DESIGNED - WPM	REVISED
		CHECKED - TB	REVISED
SCALE - NONE		DRAWN - TB	REVISED
DATE - 10/15/2012		CHECKED - WPM	REVISED

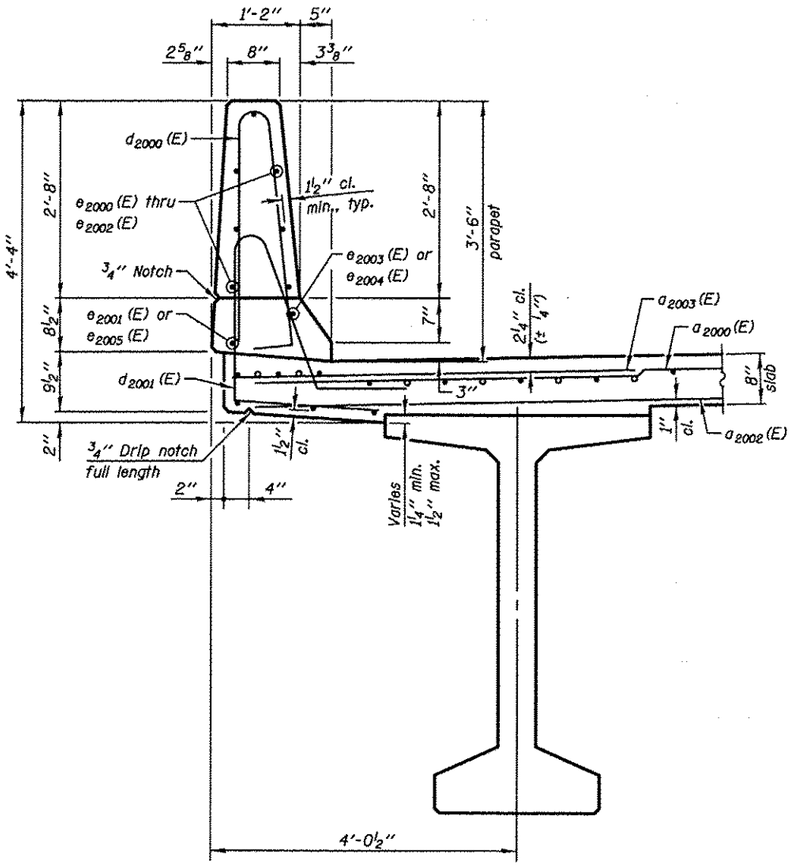
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

SHARED USE PATH AND PARAPET DETAILS (NB)
S.N. 022-2029 (SB) TOLLWAY B.N. 826
S.N. 022-2030 (NB) TOLLWAY B.N. 825
SHEET NO. SA-26 OF 63 SHEETS

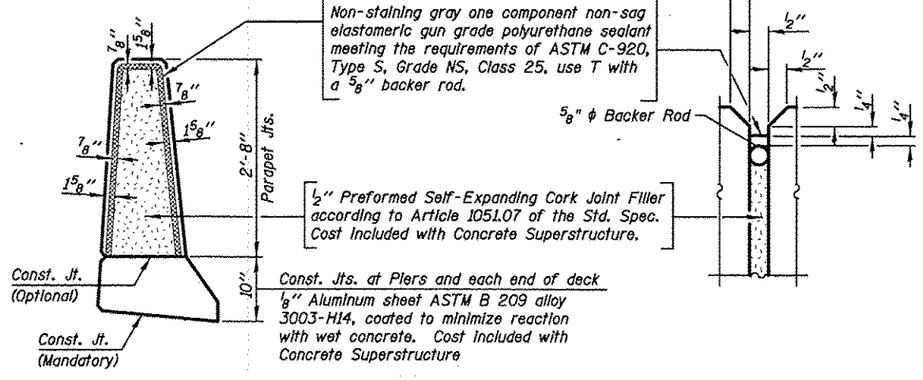
F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
338	(112 & 113) WRS-5	DUPAGE	963	610
		CONTRACT NO. 60131		
	ILLINOIS FED. AID PROJECT			



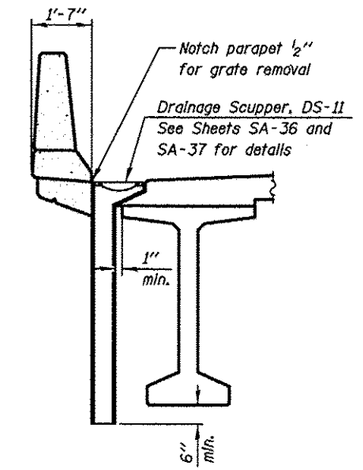
INSIDE ELEVATION OF WEST PARAPET



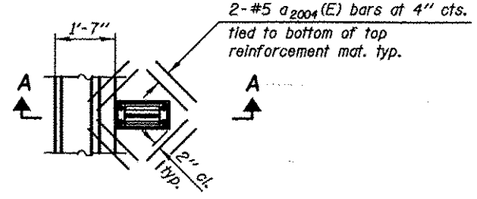
SECTION THRU PARAPET



PARAPET JOINT DETAILS



SECTION A-A



PLAN

Note:
Cut longitudinal reinforcement to clear drainage scuppers.

Notes:
Bars indicated thus 20 x 3-#5 etc. indicates 20 lines of bars with 3 lengths per line.

See Sheet SA-29 for Deck Misc. Details and Bill of Materials.

MIN. BAR LAPS:
#4 = 2'-4"
#8 = 5'-5"

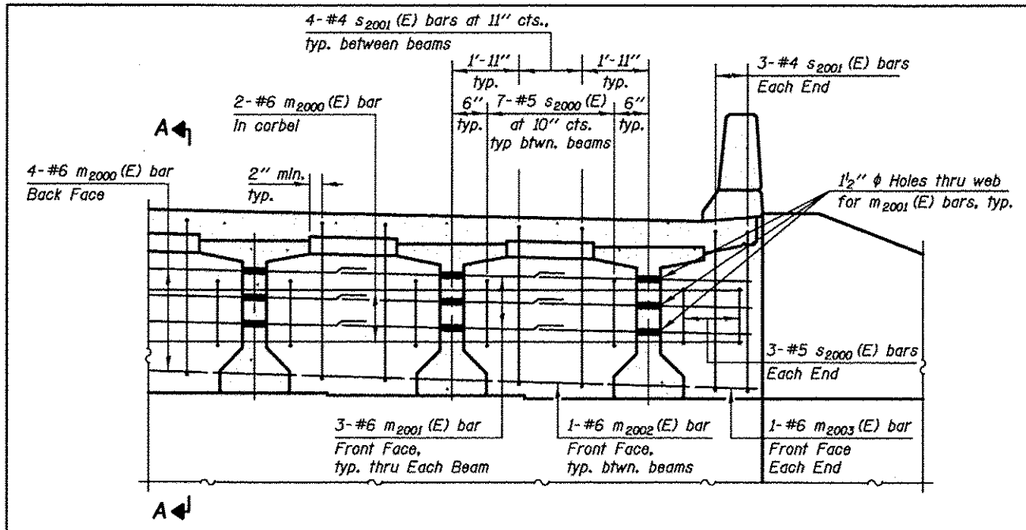
KNIGHT
Engineers & Architects

	DESIGNED - WPM	REVISED	
	CHECKED - TB	REVISED	
SCALE - NONE	DRAWN - TB	REVISED	
DATE - 10/15/2012	CHECKED - WPM	REVISED	

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

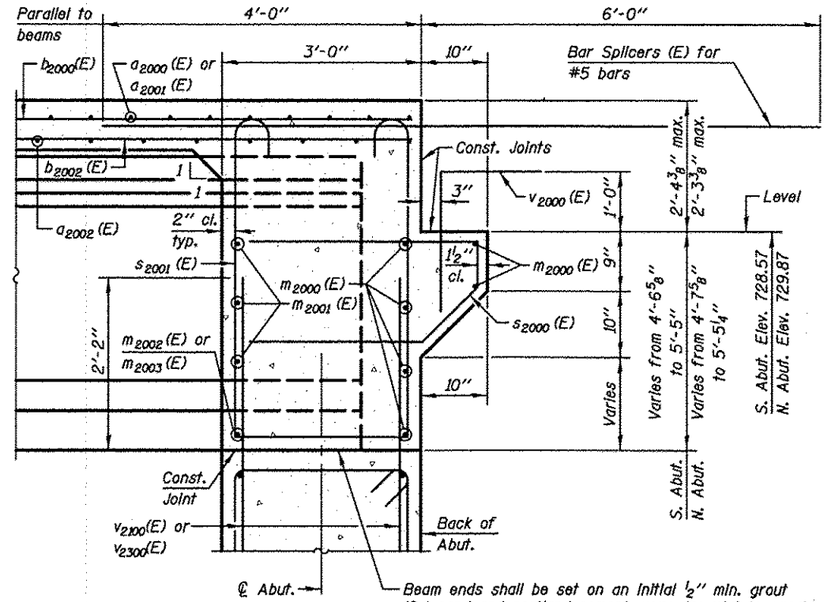
WEST PARAPET DETAILS (NB)
S.N. 022-2029 (SB) TOLLWAY B.N. 826
S.N. 022-2030 (NB) TOLLWAY B.N. 825
SHEET NO. SA-27 OF 63 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
338	(112 & 113) WRS-5	DUPAGE	963	611
		CONTRACT NO. 60I31		
	ILLINOIS FED. AID PROJECT			



DIAPHRAGM ELEVATION AT ABUTMENT

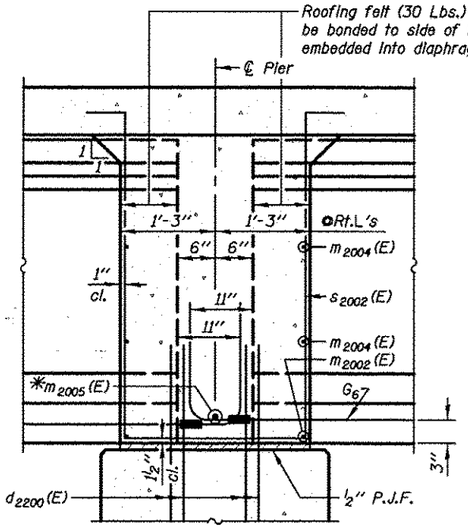
MIN. BAR LAP
#6 bar = 3'-4"



Beam ends shall be set on an initial ½" min. grout (2:1 sand and portland cement, very dry mix) to provide full bearing. Any excess grout squeezed out from under the beam shall be removed. Cost included with Concrete Structures.

SECTION A-A

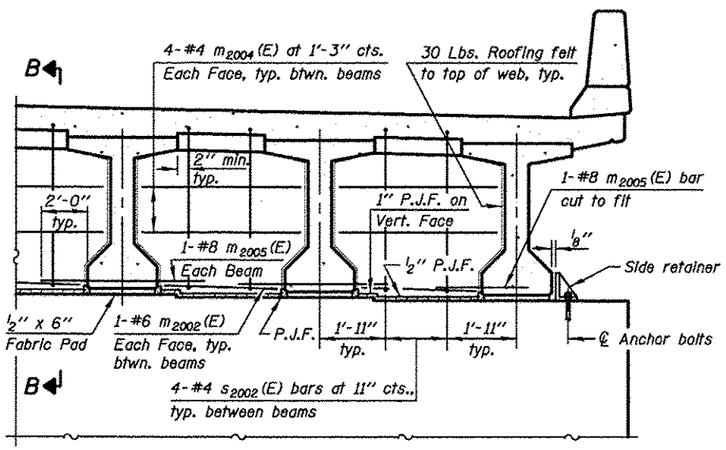
Dimensions at right angles to abutment, except as shown.



SECTION B-B

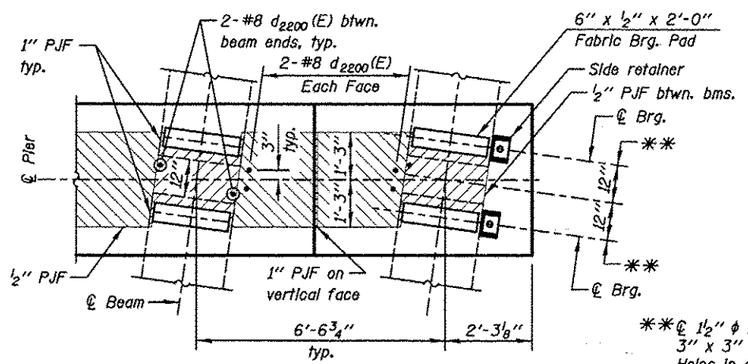
Dimensions along ℄ of beam, except as shown.

*Tightly fasten the #8 bars together with No. 9 wire ties.



DIAPHRAGM AT PIER

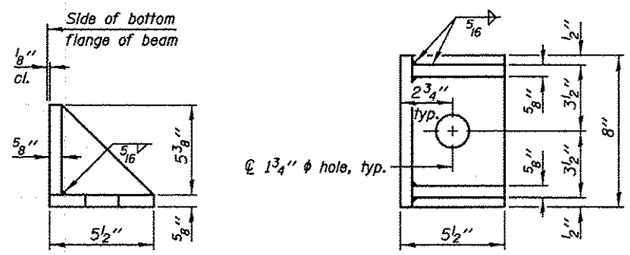
Place 2- 3" I.D. conduit sleeves thru pier diaphragm. Coordinate location with LIGHTING PLANS. Coring of holes thru pier diaphragm will not be allowed. Cost of sleeves is included with Concrete Superstructure.



PLAN AT PIER

(Showing bearing pad and PJF details)

**℄ 1½" ϕ x 18" Anchor bolts with 3" x 3" x 5/16" ℄ washer under nut. Holes in cap to be formed or drilled after beams are in place but prior to pouring concrete diaphragm.



SIDE RETAINER

(2 required each side of pier)
Equivalent rolled angle with stiffeners will be allowed in lieu of welded plates.

Notes:

Reinforcement bars in diaphragm are billed with superstructure on Sheet SA-29.

Concrete in diaphragm is included with Concrete Superstructure on Sheet SA-29.

The s_{2000} (E), s_{2001} (E) and s_{2002} (E) bars shall be placed parallel to the beams. Spacing for these bars shall be at right angles to the beams.

Cost of 30 Lb. roofing felt is included with Concrete Superstructure.

The side retainer shall be galvanized after shop fabrication according to AASHTO M 111. Cost of side retainer and anchor bolts shall be included with Concrete Structures.

Anchor bolt assemblies shall be galvanized according to Article 1006.09 of the Standard Specifications.

Anchor bolts shall be ASTM F1554 all-thread (or an Engineer-approved alternate material) of the grade(s) and diameter(s) specified. ASTM A307 Grade C anchor bolts may be used in lieu of ASTM F1554 Grade 36 (Fy = 36 ksi). The corresponding specified grade of AASHTO M314 anchor bolts may be used in lieu of ASTM F1554.

Anchor bolts for side retainers may be cast in place or installed in holes drilled before or after members are in place.

Drilled and set anchor bolts shall be installed according to Article 521.06 of the Standard Specifications.

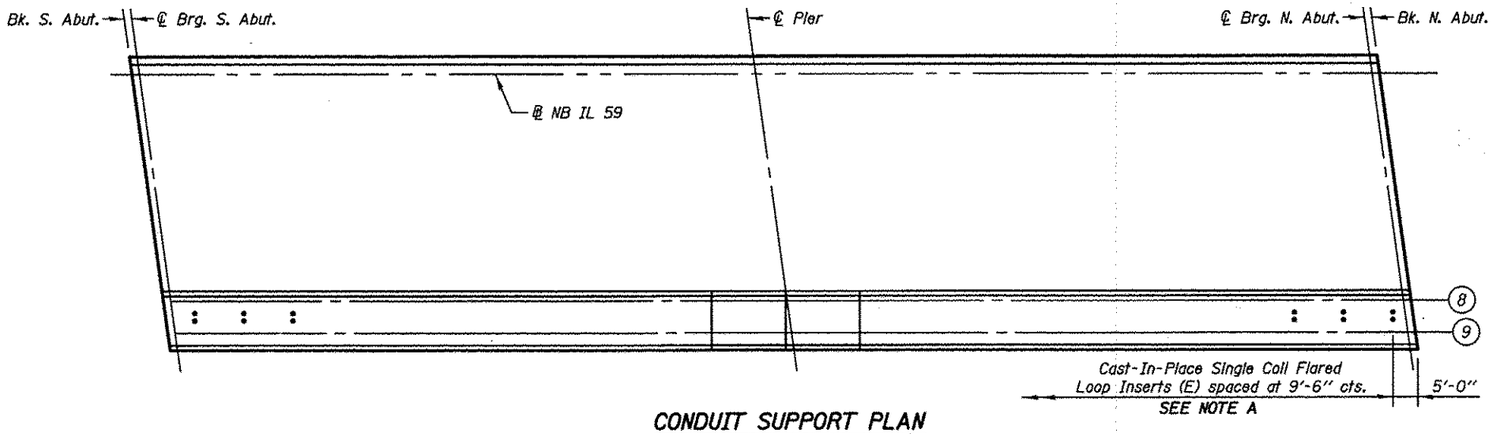
KNIGHT Engineers & Architects

		DESIGNED - WPM	REVISED
		CHECKED - TB	REVISED
SCALE - NONE		DRAWN - TB	REVISED
DATE - 10/15/2012		CHECKED - WPM	REVISED

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

DECK DIAPHRAGM DETAILS (NB)
S.N. 022-2029 (SB) TOLLWAY B.N. 826
S.N. 022-2030 (NB) TOLLWAY B.N. 825
SHEET NO. SA-28 OF 63 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
338	(112 & 113) WRS-5	DUPAGE	963	612
		CONTRACT NO. 60131		
	ILLINOIS FED. AID PROJECT			



CONDUIT SUPPORT PLAN

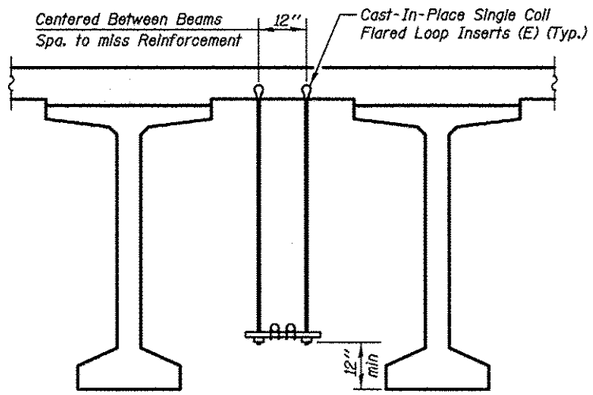
(NB Bridge)

NOTE A

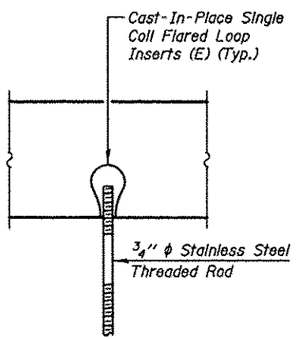
Coordinate single coil flared loop inserts with Electrical Contractor. Cost shall be included with Concrete Superstructure.

BILL OF MATERIAL

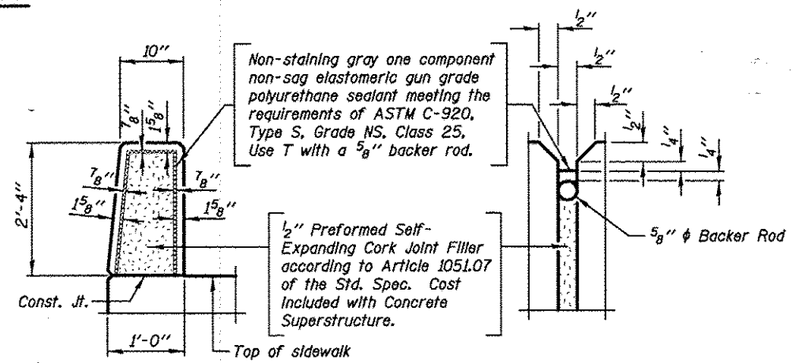
BAR	NO.	SIZE	LENGTH	SHAPE
a2000(E)	435	#5	34'-0"	
a2001(E)	435	#5	28'-0"	
a2002(E)	610	#5	31'-3"	
a2003(E)	433	#6	6'-6"	
a2004(E)	24	#5	1'-6"	
b2000(E)	434	#6	39'-6"	
b2001(E)	354	#8	27'-3"	
b2002(E)	496	#6	35'-0"	
b2003(E)	108	#6	25'-3"	
b2004(E)	153	#5	31'-0"	
c2000(E)	254	#5	11'-8"	
d2000(E)	276	#5	6'-10"	
d2001(E)	276	#5	7'-6"	
d2002(E)	254	#5	5'-3"	
d2003(E)	508	#5	4'-4"	
d2004(E)	64	#4	2'-2"	
d2005(E)	64	#4	3'-4"	
e2000(E)	156	#4	15'-8"	
e2001(E)	28	#4	14'-8"	
e2002(E)	26	#4	15'-2"	
e2003(E)	8	#8	32'-0"	
e2004(E)	2	#8	14'-8"	
e2005(E)	8	#4	29'-9"	
m2000(E)	24	#6	31'-9"	
m2001(E)	54	#6	10'-3"	
m2002(E)	32	#6	4'-1"	
m2003(E)	4	#6	2'-7"	
m2004(E)	64	#4	5'-9"	
m2005(E)	9	#8	6'-2"	
s2000(E)	124	#5	7'-6"	
s2001(E)	76	#4	16'-6"	
s2002(E)	32	#4	16'-6"	
v2000(E)	120	#5	4'-2"	
Reinforcement Bars, Epoxy Coated			LB	158400
Concrete Superstructure			Cu. Yd.	686.0
Bridge Deck Grooving			Sq. Yd.	1237.0
Protective Coat			Sq. Yd.	1919.0



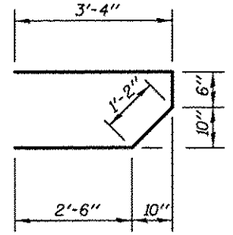
CONDUIT SUPPORT DETAIL



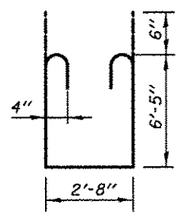
THREADED COIL LOOP INSERTS DETAIL



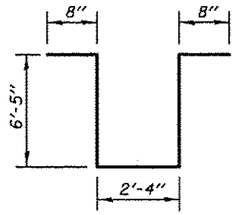
PARAPET JOINT DETAILS



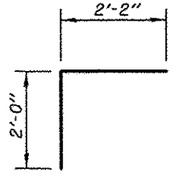
BAR s_{2000} (E)



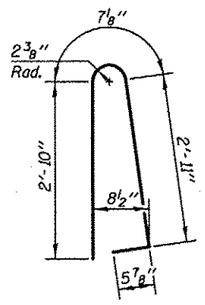
BAR s_{2001} (E)



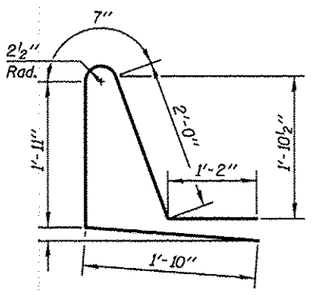
BAR s_{2002} (E)



BAR v_{2000} (E)



BAR d_{2000} (E)



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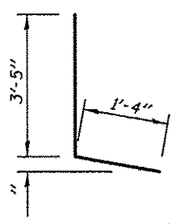

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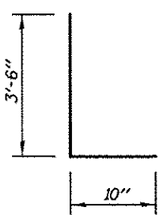
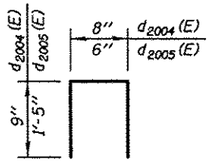


BAR d_{2003} (E)



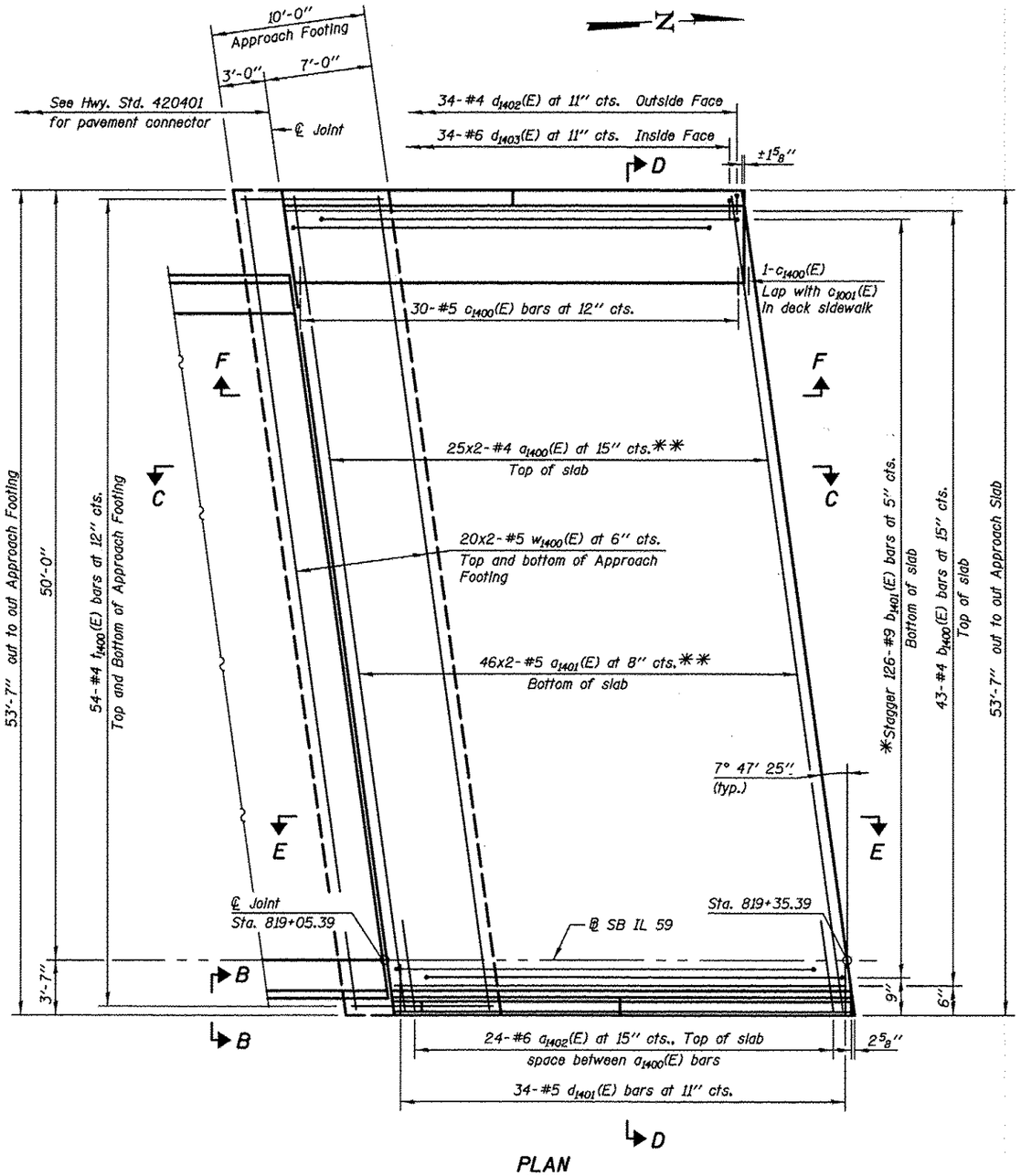
BARS d_{2004} (E) & d_{2005} (E)

KNIGHT Engineers & Architects		DESIGNED - WPM	REVISED
		CHECKED - TB	REVISED
	SCALE - NONE	DRAWN - TB	REVISED
	DATE - 10/15/2012	CHECKED - WPM	REVISED

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

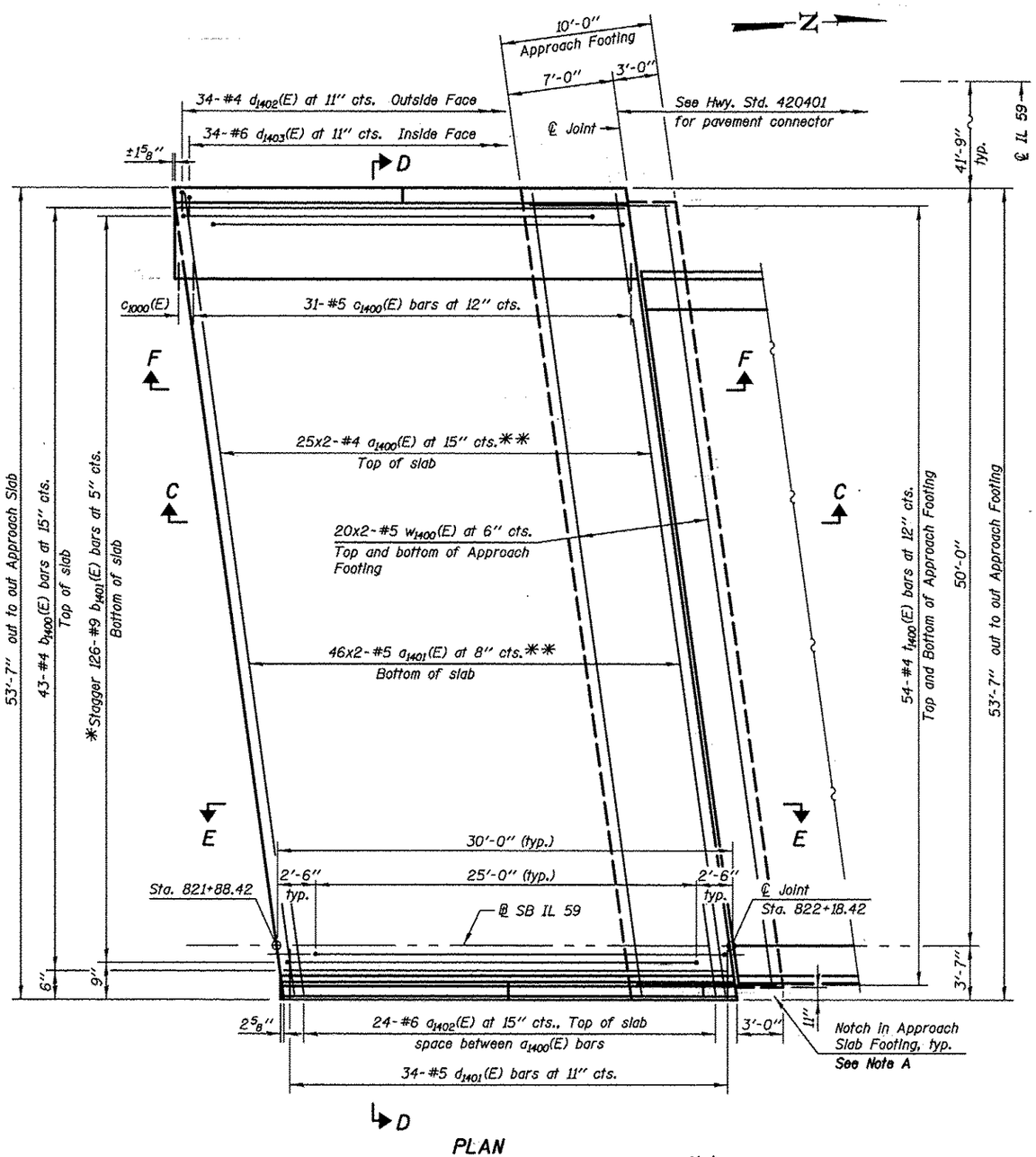
DECK MISCELLANEOUS DETAILS (NB)
S.N. 022-2029 (SB) TOLLWAY B.N. 826
S.N. 022-2030 (NB) TOLLWAY B.N. 825
SHEET NO. SA-29 OF 63 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
338	(112 & 113) WRS-5	DUPAGE	963	613
		CONTRACT NO. 60131		
	ILLINOIS FED. AID PROJECT			



PLAN

South Approach Slab (SB)



PLAN

North Approach Slab (SB)

*Tilt #9 b_{1401}(E) bars as required to maintain clearance.

**Measured along ℄ Roadway

NOTE A

3'-0" x 11" notch in approach slab footing for Traffic Barrier Terminal Type 6 and T6 posts. Cut t_{1400}(E) and w_{1400}(E) bars, as required, to fit notch.
North Approach Slab Only

Notes:

Bars indicated thus 20x3-#5 ect. indicates 20 lines of bars with 3 lengths per line.

See Sheet SA-31 for Sections C-C & D-D and Views B-B & E-E

See Sheet SA-32 for View F-F and Sidewalk & Parapet Details.

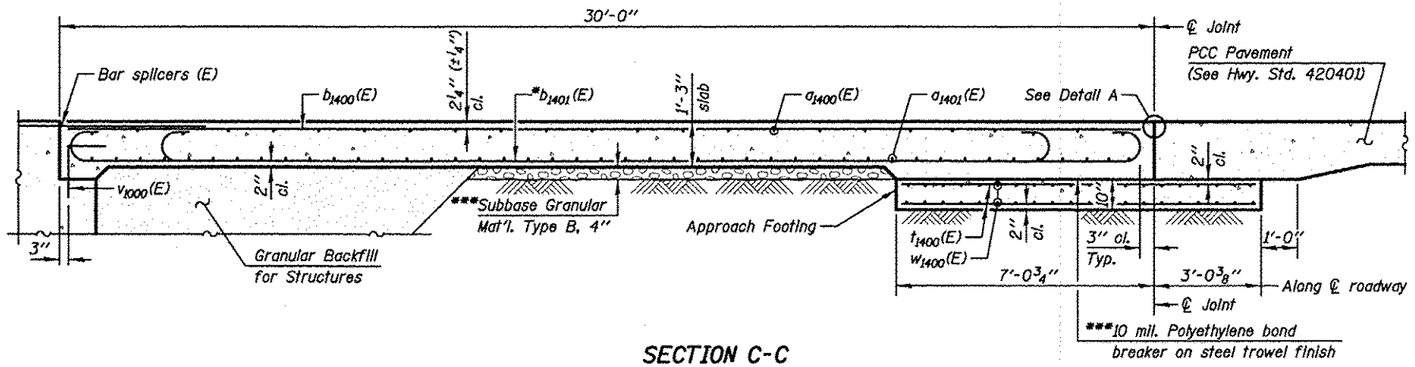
KNIGHT
Engineers & Architects

	DESIGNED - WPM	REVISED	
	CHECKED - TB	REVISED	
SCALE - NONE	DRAWN - TB	REVISED	
DATE - 10/15/2012	CHECKED - WPM	REVISED	

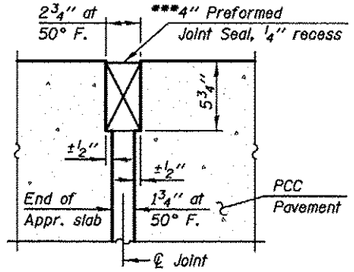
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

BRIDGE APPROACH SLAB PLAN (SB)
S.N. 022-2029 (SB) TOLLWAY B.N. 826
S.N. 022-2030 (NB) TOLLWAY B.N. 825
SHEET NO. SA-30 OF 63 SHEETS

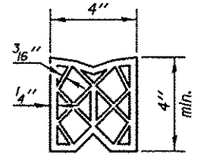
F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
338	(112 & 113) WRS-S	DUPAGE	963	614
		CONTRACT NO. 60131		
	ILLINOIS FED. AID PROJECT			



SECTION C-C



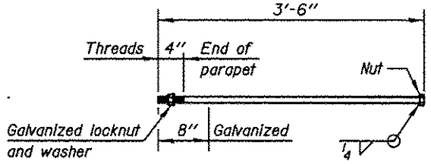
DETAIL A



PREFORMED JOINT SEAL

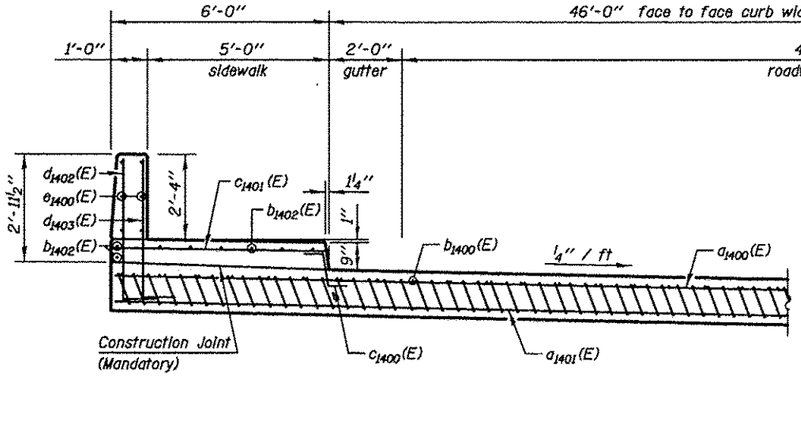
*Tilt #9 b_{1401}(E) bars as required to maintain clearance.

***Cost Included with Concrete Superstructure.

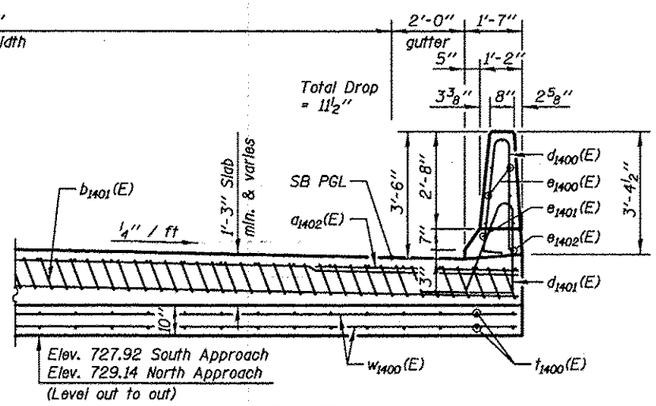


1"ϕ ANCHOR BOLT

(Cost Included with Concrete Superstructure)



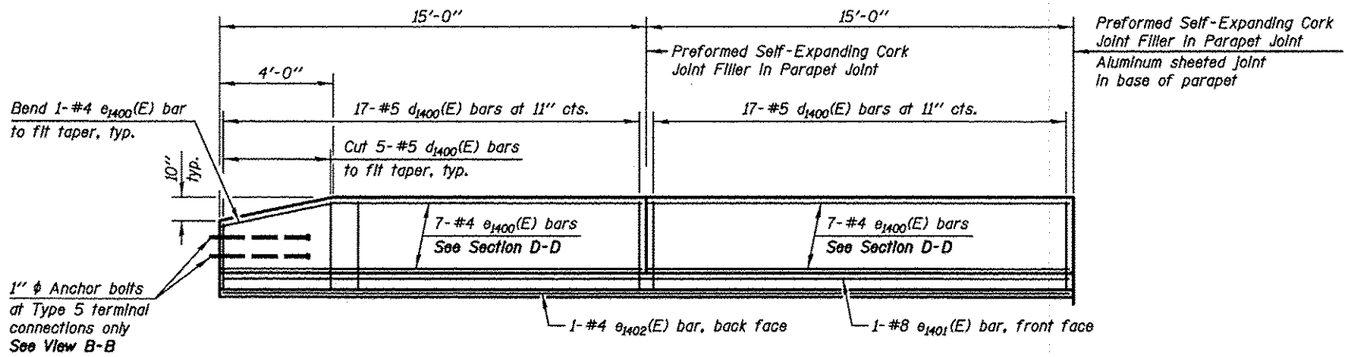
NEAR ABUTMENT



AT APPROACH FOOTING

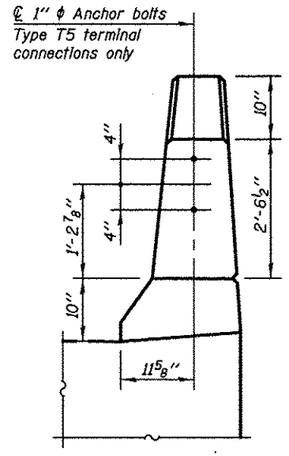
SECTION D-D

(See Plan for dimensions not shown)



VIEW E-E

Dimensions along inside face of parapet
North Approach parapet shown, South Approach parapet opposite hand



VIEW B-B

Notes:

The approach footing maximum applied service bearing pressure (Q_{max}) = 2.0 ksf.

See Sheet SA-24 for v_{1000}(E) bar details

See Sheet SA-55 for bar splicer details.

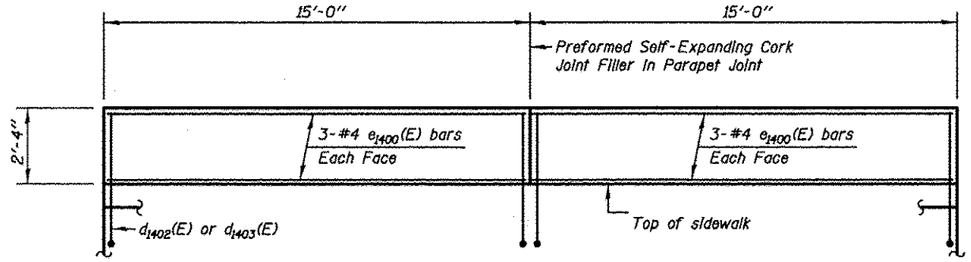
See Sheet SA-03 for Granular Backfill for Structures and drainage treatment details.

See Sheet SA-22 for Parapet Joint Details and additional parapet details.

KNIGHT Engineers & Architects		DESIGNED - WPM	REVISED	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION
		CHECKED - TB	REVISED	
	SCALE - NONE	DRAWN - TB	REVISED	
	DATE - 10/15/2012	CHECKED - WPM	REVISED	

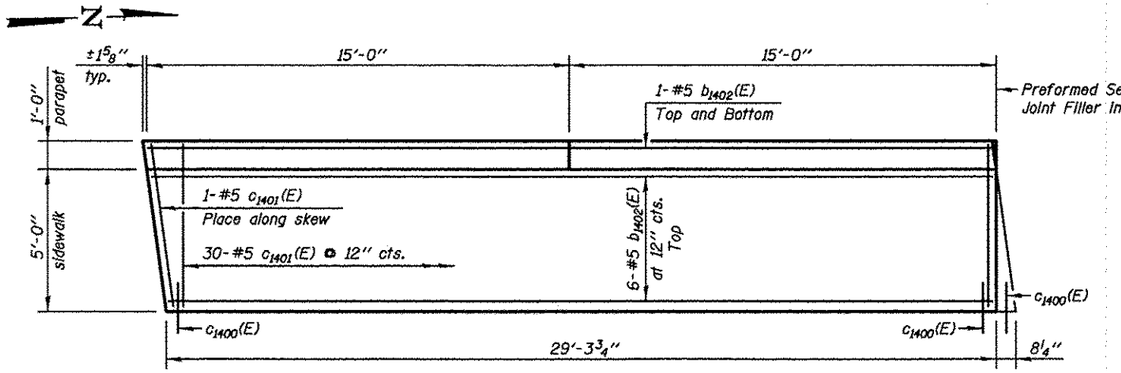
BRIDGE APPROACH SLAB DETAILS (SB)
S.N. 022-2029 (SB) TOLLWAY B.N. 826
S.N. 022-2030 (NB) TOLLWAY B.N. 825
SHEET NO. SA-31 OF 63 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
338	(112 & 113) WRS-S	DUPAGE	963	615
		CONTRACT NO. 60I31		
	ILLINOIS FED. AID PROJECT			



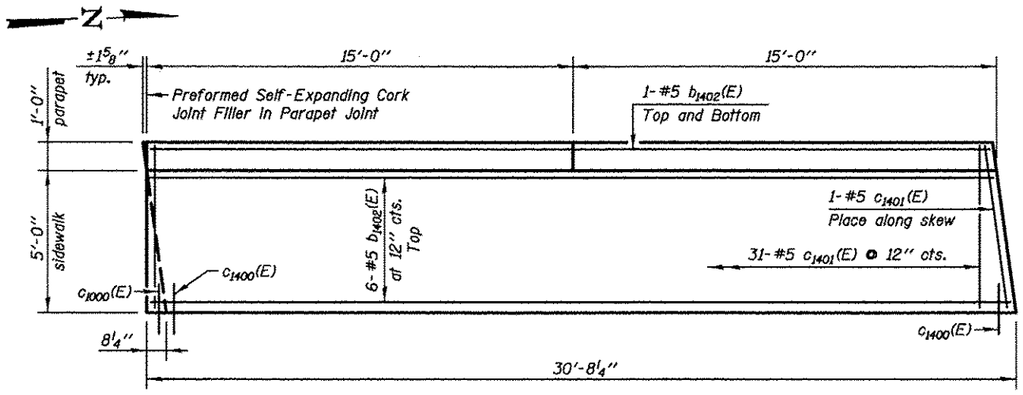
VIEW F-F

Dimensions along inside face of parapet



SIDEWALK - PARTIAL PLAN

South Approach Slab (SB)



SIDEWALK - PARTIAL PLAN

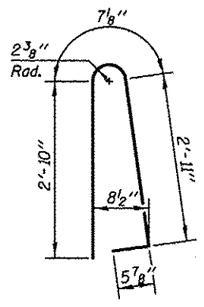
North Approach Slab (SB)

BILL OF MATERIAL
SOUTH APPROACH SLAB

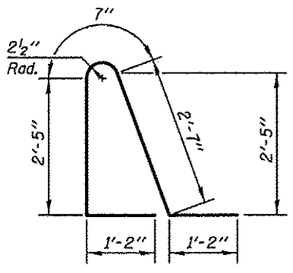
BAR	NO.	SIZE	LENGTH	SHAPE
a1400(E)	50	#4	28'-3"	
a1401(E)	92	#5	28'-9"	
a1402(E)	24	#6	6'-6"	
b1400(E)	43	#4	29'-8"	
b1401(E)	126	#9	29'-9"	
b1402(E)	8	#5	30'-0"	
c1400(E)	31	#5	2'-5"	
c1401(E)	31	#5	5'-8"	
d1400(E)	34	#5	6'-10"	
d1401(E)	34	#5	7'-11"	
d1402(E)	34	#4	4'-8"	
d1403(E)	34	#6	5'-0"	
e1400(E)	26	#4	14'-8"	
e1401(E)	1	#8	29'-8"	
e1402(E)	1	#4	29'-8"	
f1400(E)	108	#4	9'-9"	
w1400(E)	80	#5	28'-9"	
Reinforcement Bars, Epoxy Coated			LB	22390
Concrete Superstructure			Cu. Yd.	100.0
Concrete Structures			Cu. Yd.	18.0
Bridge Deck Grooving			Sq. Yd.	147.0
Protective Coat			Sq. Yd.	198.0

BILL OF MATERIAL
NORTH APPROACH SLAB

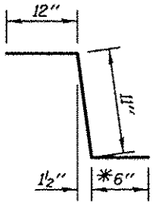
BAR	NO.	SIZE	LENGTH	SHAPE
a1400(E)	50	#4	28'-3"	
a1401(E)	92	#5	28'-9"	
a1402(E)	24	#6	6'-6"	
b1400(E)	43	#4	29'-8"	
b1401(E)	126	#9	29'-9"	
b1402(E)	8	#5	30'-0"	
c1400(E)	31	#5	2'-5"	
c1401(E)	32	#5	5'-8"	
d1400(E)	34	#5	6'-10"	
d1401(E)	34	#5	7'-11"	
d1402(E)	34	#4	4'-8"	
d1403(E)	34	#6	5'-0"	
e1400(E)	26	#4	14'-8"	
e1401(E)	1	#8	29'-8"	
e1402(E)	1	#4	29'-8"	
f1400(E)	108	#4	9'-9"	
w1400(E)	80	#5	28'-9"	
Reinforcement Bars, Epoxy Coated			LB	22400
Concrete Superstructure			Cu. Yd.	100.0
Concrete Structures			Cu. Yd.	18.0
Bridge Deck Grooving			Sq. Yd.	147.0
Protective Coat			Sq. Yd.	198.0



BAR d_{1400}(E)

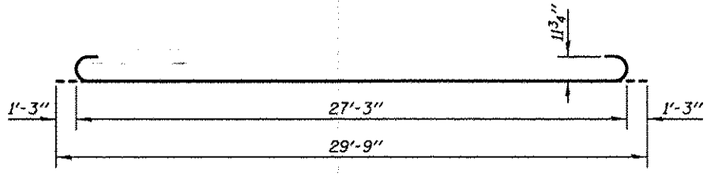


BAR d_{1401}(E)

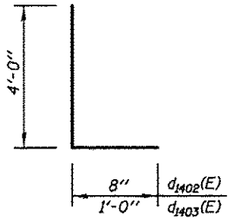


BAR c_{1400}(E)

*In lieu of bottom leg, c_{1400}(E) bars may be cored and set according to Article 509.06 of the Standard Specifications. Cored holes shall be roughened or scored per manufacturer's recommendations. Maximum depth of cored hole shall not exceed 6".



BAR b_{1401}(E)



BARS d_{1402}(E) & d_{1403}(E)

Notes:

Approach slab and parapet concrete shall be paid for as Concrete Superstructure.

Approach footing concrete shall be paid for as Concrete Structures.

Reinforcement shall be paid for as Reinforcement Bars, Epoxy Coated.

Cost of excavation for approach footing included with Concrete Structures.

See Sheet SA-21 for Parapet Joint Details and additional sidewalk and parapet details.

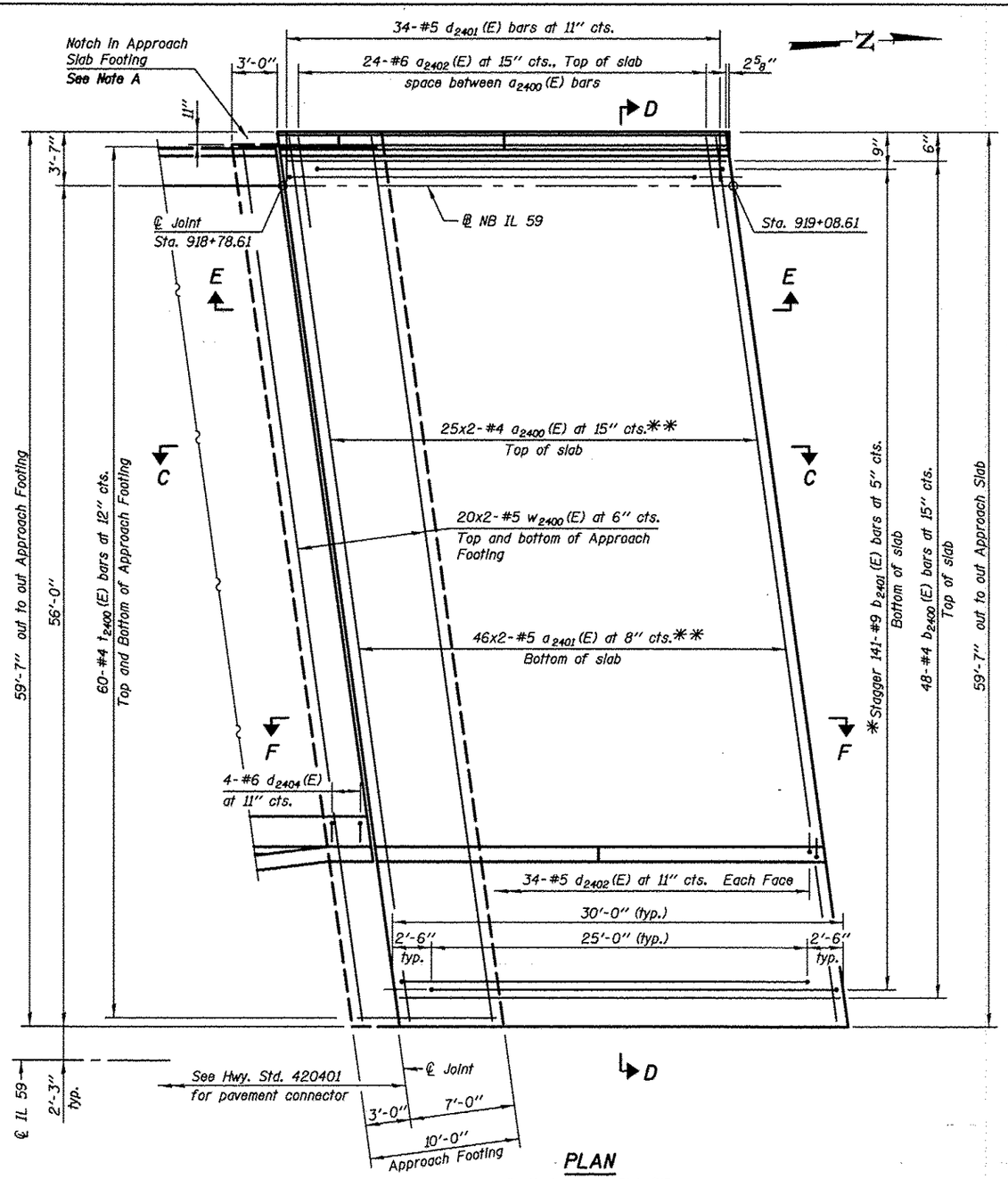
KNIGHT Engineers & Architects

		DESIGNED - WPM	REVISED
		CHECKED - TB	REVISED
SCALE - NONE		DRAWN - TB	REVISED
DATE - 10/15/2012		CHECKED - WPM	REVISED

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

BRIDGE APPROACH SLAB DETAILS (SB)
S.N. 022-2029 (SB) TOLLWAY B.N. 826
S.N. 022-2030 (NB) TOLLWAY B.N. 825
SHEET NO. SA-32 OF 63 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
338	(112 & 113) WRS-5	DUPAGE	963	616
		CONTRACT NO. 60131		
	ILLINOIS FED. AID PROJECT			



PLAN
South Approach Slab (NB)

PLAN
North Approach Slab (NB)

*Tilt #9 b_{2401}(E) bars as required to maintain clearance.

**Measured along ℄ Roadway

NOTE A
3'-0" x 11" notch in approach slab footing for Traffic Barrier Terminal Type T6 posts. Cut t_{2400} (E) and w_{2400} (E) bars, as required, to fit notch.
South Approach Slab Only

Notes:
Bars indicated thus 20x3-#5 ect. indicates 20 lines of bars with 3 lengths per line.

See Sheet SA-34 for Sections C-C & D-D and Views B-B & E-E

See Sheet SA-35 for View F-F and Shared Use Path and Parapet Details.

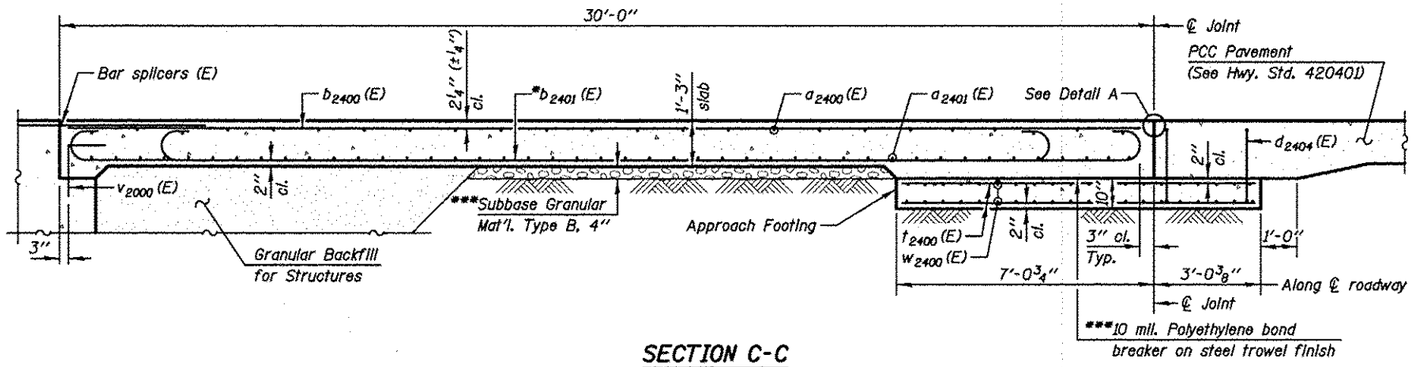
KNIGHT
Engineers & Architects

		DESIGNED - WPM	REVISED
		CHECKED - TB	REVISED
SCALE - NONE		DRAWN - TB	REVISED
DATE - 10/15/2012		CHECKED - WPM	REVISED

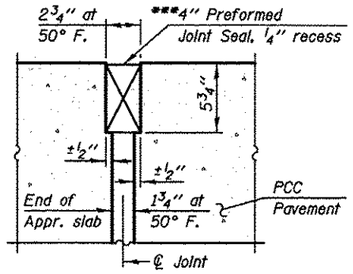
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

BRIDGE APPROACH SLAB PLAN (NB)
S.N. 022-2029 (SB) TOLLWAY B.N. 826
S.N. 022-2030 (NB) TOLLWAY B.N. 825
SHEET NO. SA-33 OF 63 SHEETS

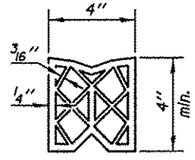
F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
338	(112 & 113) WRS-5	DUPAGE	963	617
		CONTRACT NO. 60131		
	ILLINOIS FED. AID PROJECT			



SECTION C-C



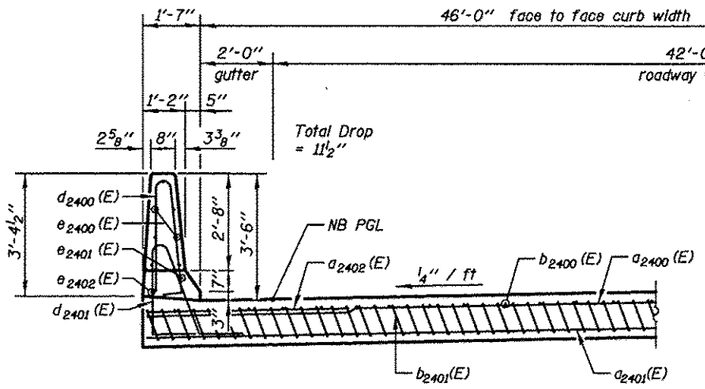
DETAIL A



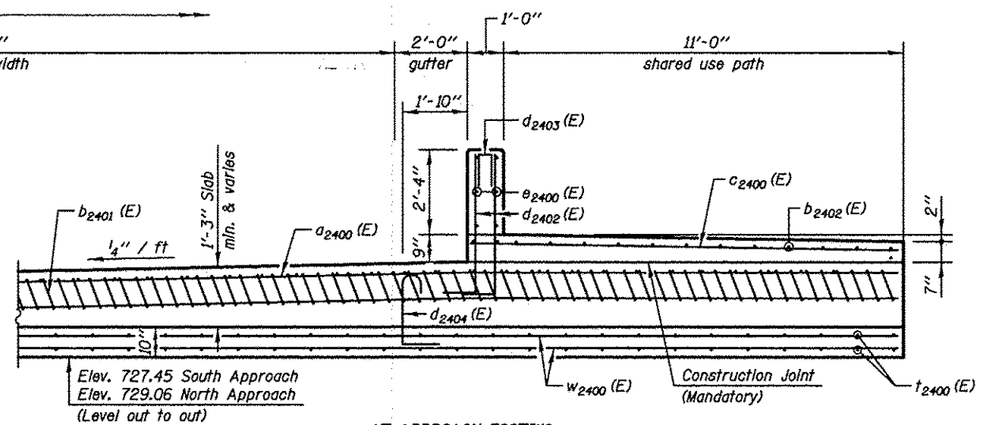
PREFORMED JOINT SEAL

*Tilt #9 b_{1401}(E) bars as required to maintain clearance.

***Cost included with Concrete Superstructure.



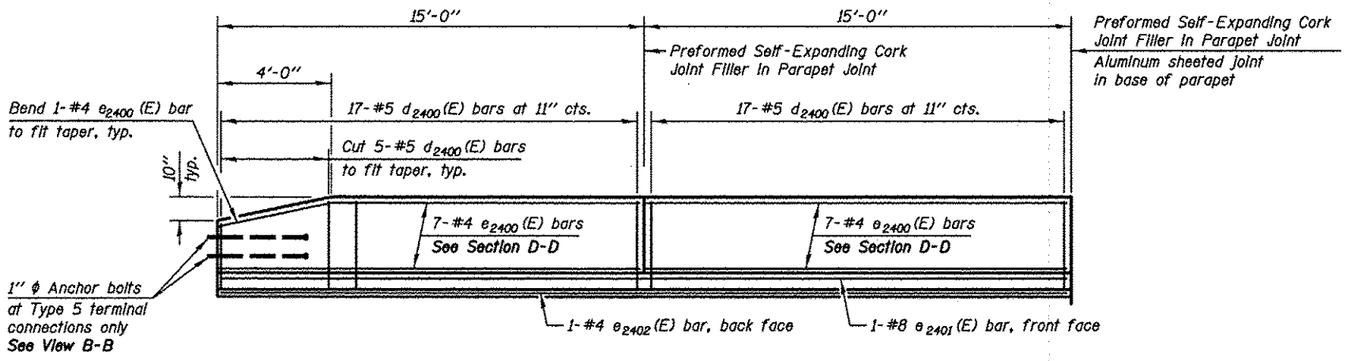
NEAR ABUTMENT



AT APPROACH FOOTING

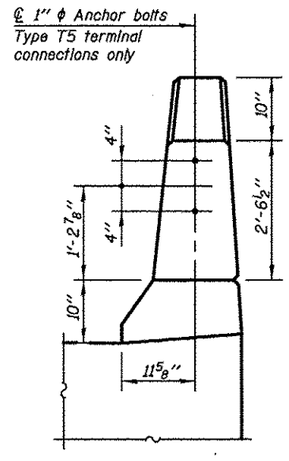
SECTION D-D

(See Plan for dimensions not shown)

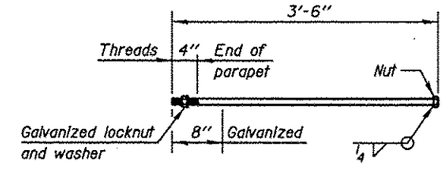


VIEW E-E

Dimensions along inside face of parapet
South Approach parapet shown, North Approach parapet opposite hand



VIEW B-B



1"ϕ ANCHOR BOLT

(Cost included with Concrete Superstructure)

Notes:

The approach footing maximum applied service bearing pressure (Q_{max}) = 2.0 ksf.

See Sheet SA-29 for v_{2000}(E) bar details

See Sheet SA-55 for bar splicer details.

See Sheet SA-03 for Granular Backfill for Structures and drainage treatment details.

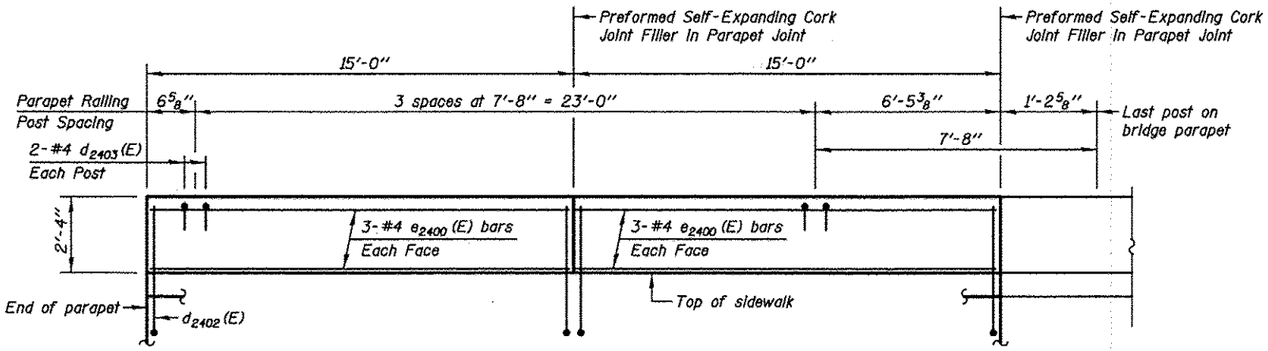
See Sheet SA-27 for Parapet Joint Details and additional parapet details.

KNIGHT Engineers & Architects		DESIGNED - WPM	REVISED
		CHECKED - TB	REVISED
	SCALE - NONE	DRAWN - TB	REVISED
	DATE - 10/15/2012	CHECKED - WPM	REVISED

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

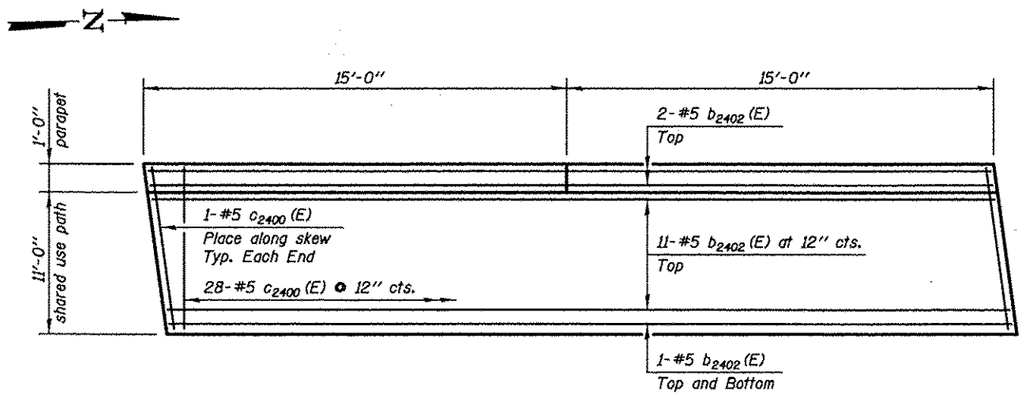
BRIDGE APPROACH SLAB DETAILS (NB)
S.N. 022-2029 (SB) TOLLWAY B.N. 826
S.N. 022-2030 (NB) TOLLWAY B.N. 825
SHEET NO. SA-34 OF 63 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
338	(112 & 113) WRS-5	DUPAGE	963	618
		CONTRACT NO. 60131		
	ILLINOIS FED. AID PROJECT			



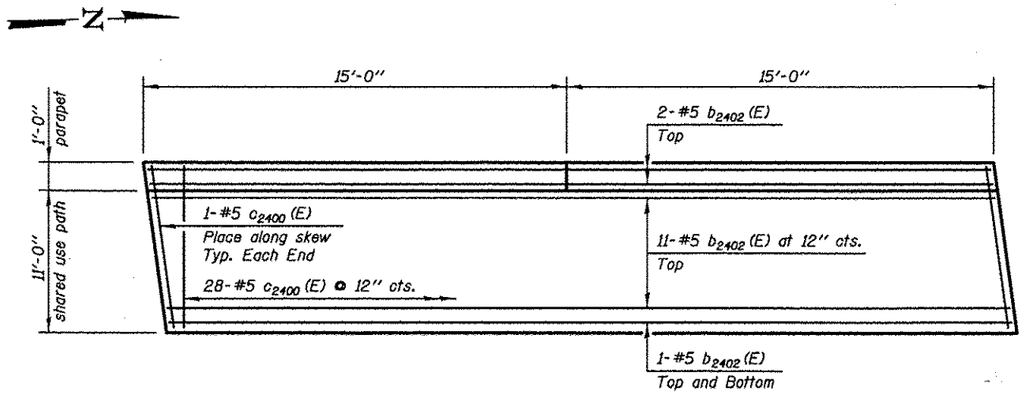
VIEW F-F

Dimensions along roadway face of parapet
South Approach parapet shown, North Approach parapet opposite hand



SHARED USE PATH - PARTIAL PLAN

South Approach Slab (SB)



SHARED USE PATH - PARTIAL PLAN

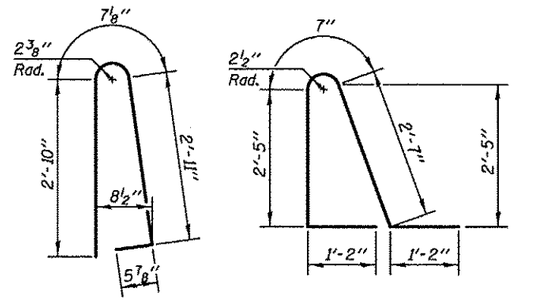
North Approach Slab (SB)

BILL OF MATERIAL
SOUTH APPROACH SLAB

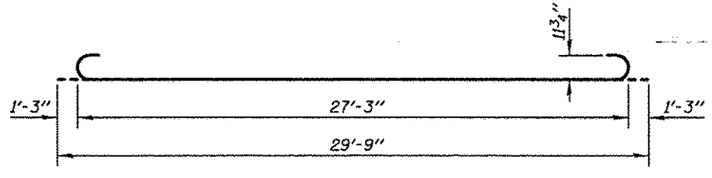
BAR	NO.	SIZE	LENGTH	SHAPE
a2400(E)	50	#4	31'-3"	
a2401(E)	92	#5	31'-9"	
a2402(E)	24	#6	6'-6"	
b2400(E)	48	#4	29'-8"	
b2401(E)	141	#9	29'-9"	
b2402(E)	15	#5	29'-7"	
c2400(E)	30	#5	11'-8"	
d2400(E)	34	#5	6'-10"	
d2401(E)	34	#5	7'-11"	
d2402(E)	68	#5	4'-10"	
d2403(E)	8	#4	2'-2"	
d2404(E)	4	#6	4'-4"	
e2400(E)	26	#4	14'-8"	
e2401(E)	1	#8	29'-8"	
e2402(E)	1	#4	29'-8"	
t2400(E)	120	#4	9'-9"	
w2400(E)	80	#5	31'-9"	
Reinforcement Bars, Epoxy Coated			LB	25060
Concrete Superstructure			Cu. Yd.	115.0
Concrete Structures			Cu. Yd.	20.0
Bridge Deck Grooving			Sq. Yd.	147.0
Protective Coat			Sq. Yd.	226.0

BILL OF MATERIAL
NORTH APPROACH SLAB

BAR	NO.	SIZE	LENGTH	SHAPE
a2400(E)	50	#4	31'-3"	
a2401(E)	92	#5	31'-9"	
a2402(E)	24	#6	6'-6"	
b2400(E)	48	#4	29'-8"	
b2401(E)	141	#9	29'-9"	
b2402(E)	15	#5	29'-7"	
c2400(E)	30	#5	11'-8"	
d2400(E)	34	#5	6'-10"	
d2401(E)	34	#5	7'-11"	
d2402(E)	68	#5	4'-10"	
d2403(E)	8	#4	2'-2"	
d2404(E)	4	#6	4'-4"	
e2400(E)	26	#4	14'-8"	
e2401(E)	1	#8	29'-8"	
e2402(E)	1	#4	29'-8"	
t2400(E)	120	#4	9'-9"	
w2400(E)	80	#5	31'-9"	
Reinforcement Bars, Epoxy Coated			LB	25060
Concrete Superstructure			Cu. Yd.	115.0
Concrete Structures			Cu. Yd.	20.0
Bridge Deck Grooving			Sq. Yd.	147.0
Protective Coat			Sq. Yd.	226.0



BAR d_{2400}(E) BAR d_{2401}(E) BAR d_{2402}(E) BAR d_{2403}(E) BAR d_{2404}(E)



BAR b_{2401}(E)

Notes:

Approach slab and parapet concrete shall be paid for as Concrete Superstructure.

Approach footing concrete shall be paid for as Concrete Structures.

Reinforcement shall be paid for as Reinforcement Bars, Epoxy Coated.

Cost of excavation for approach footing included with Concrete Structures.

See Sheet SA-26 for additional shared use path and parapet details.

See Sheet SA-29 for Parapet Joint Details.

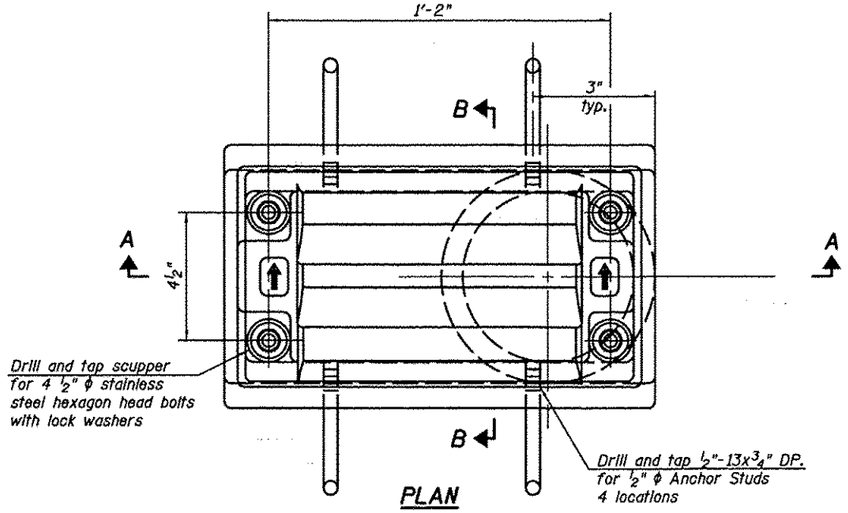
KNIGHT
Engineers & Architects

		DESIGNED - WPM	REVISED
		CHECKED - TB	REVISED
SCALE - NONE		DRAWN - TB	REVISED
DATE - 10/15/2012		CHECKED - WPM	REVISED

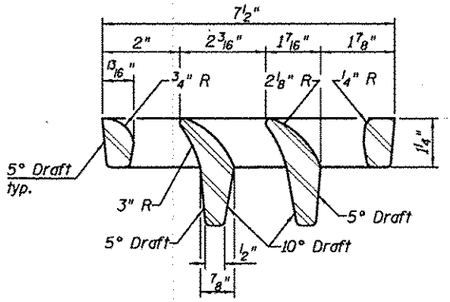
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

BRIDGE APPROACH SLAB DETAILS (NB)
S.N. 022-2029 (SB) TOLLWAY B.N. 826
S.N. 022-2030 (NB) TOLLWAY B.N. 825
SHEET NO. SA-35 OF 63 SHEETS

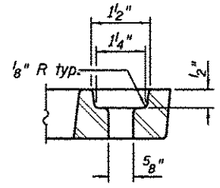
F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
338	(112 & 113) WRS-5	DUPAGE	963	619
		CONTRACT NO. 60131		
	ILLINOIS	FED. AID PROJECT		



PLAN



VANE GRATE DETAIL



BOLT HOLE DETAIL

Notes:

All cast iron parts shall be gray iron conforming to the requirements of AASHTO M 105, Class 35B.

Bolts, anchor studs, washers and nuts shall conform to the requirements of ASTM A 307 and shall be galvanized according to AASHTO M 232.

Downspouts located on the exterior side of a painted steel fascia beam shall be painted with the finish coat specified for the exterior side of the fascia beam.

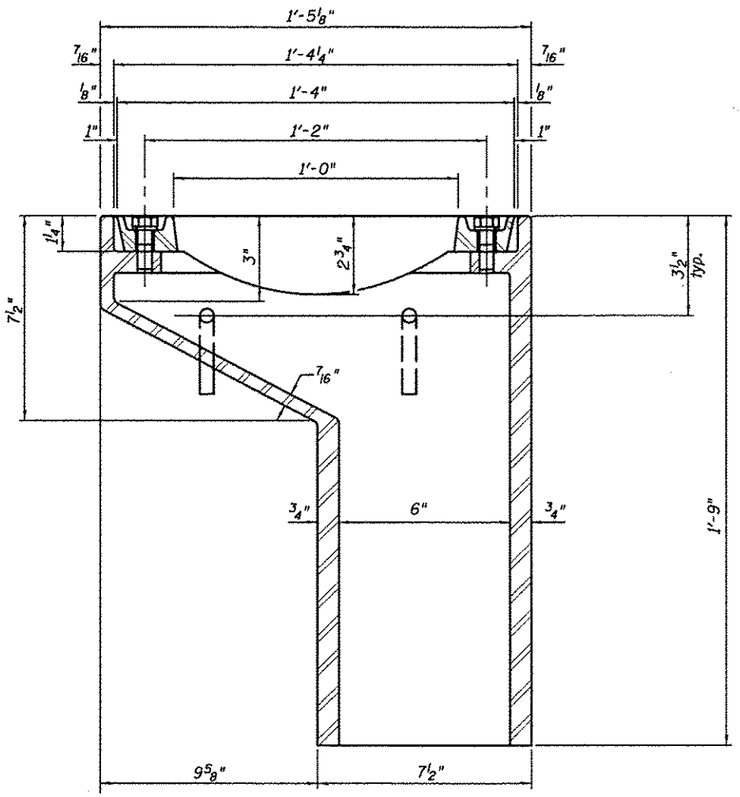
As an alternate, bolts, anchor studs, washers and nuts may be stainless steel according to Article 1006.29(d) of the Standard Specifications.

Structural steel weldments of equal sections and of the same configuration may be substituted for the cast iron scupper frame. Fillet or full penetration welds shall be used for the weldments. Details shall be submitted to the Engineer for approval. Structural steel weldments shall not be substituted for the cast iron scupper grate. Structural steel frames and downspouts shall be galvanized according to AASHTO M111.

The Contractor shall take appropriate measures to assure that Protective Coat is not applied to the scupper.

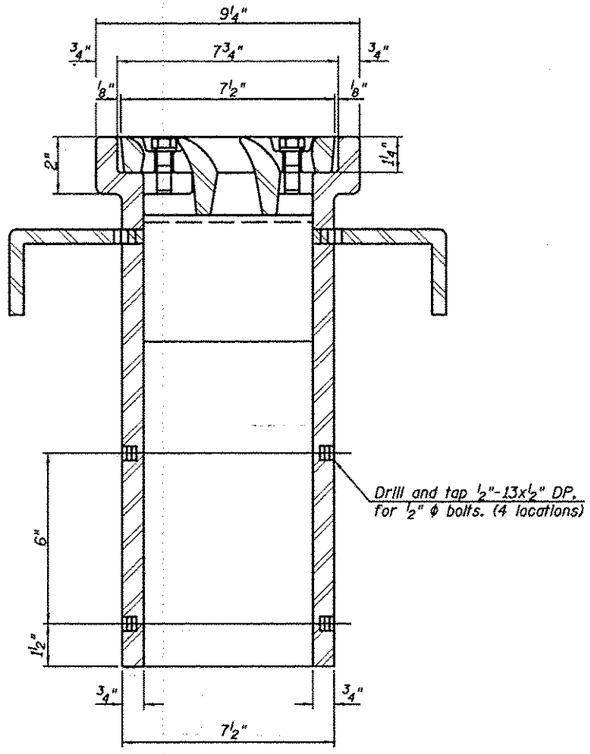
Cost of the Grate, Frame, Downspout, Anchor Studs, Bolts, Washers and Nuts including complete installation of the scupper shall be paid for at the contract unit price each for Drainage Scupper, DS-11.

Alternate fiberglass downspout conforming to ASTM D 2996 with a short-time rupture strength hoop tensile stress of 30,000 psi min. may be used in lieu of the cast iron or steel equivalent.

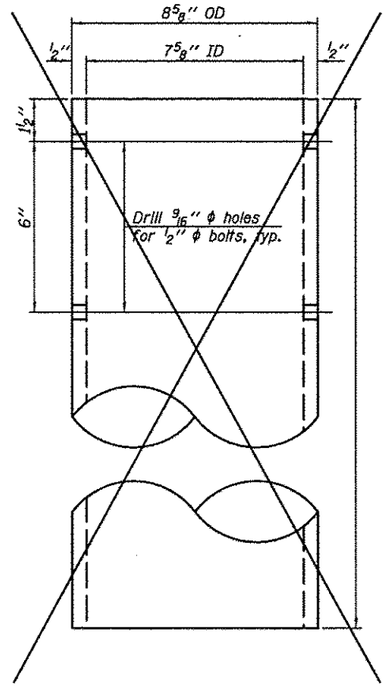


SECTION A-A

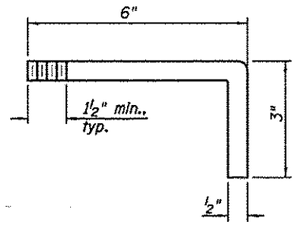
See Sheet SA-22 and SA-27 for scupper location relative to parapet



SECTION B-B



DOWNSPOUT



ANCHOR STUD DETAIL

BILL OF MATERIAL

Item	Unit	Quantity
Drainage Scupper, DS-11	Each	6

DS-11 7-1-10

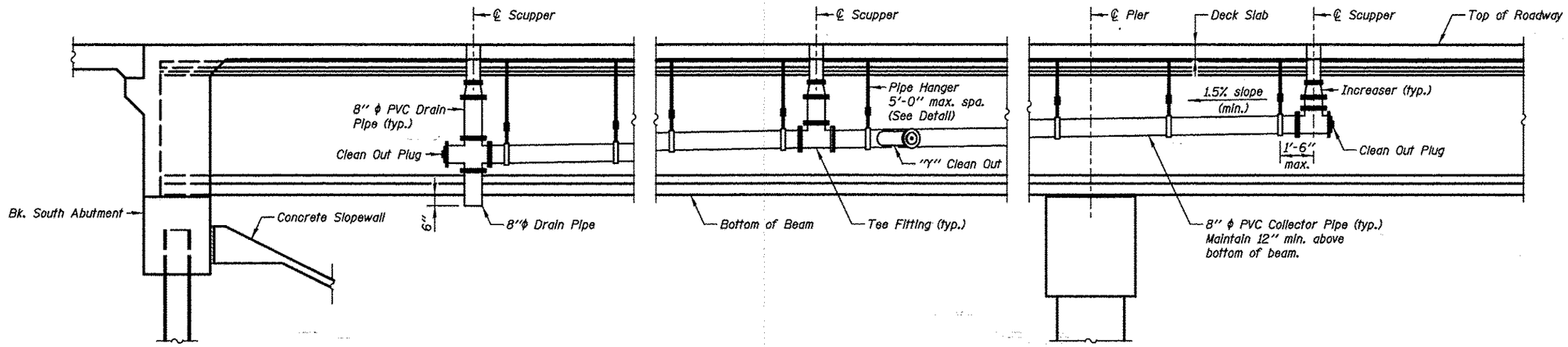
	DESIGNED - WPM		REVISED
	CHECKED - TB		REVISED
SCALE - NONE	DRAWN - TB		REVISED
DATE - 10/15/2012	CHECKED WPM		REVISED

KNIGHT
Engineers & Architects

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

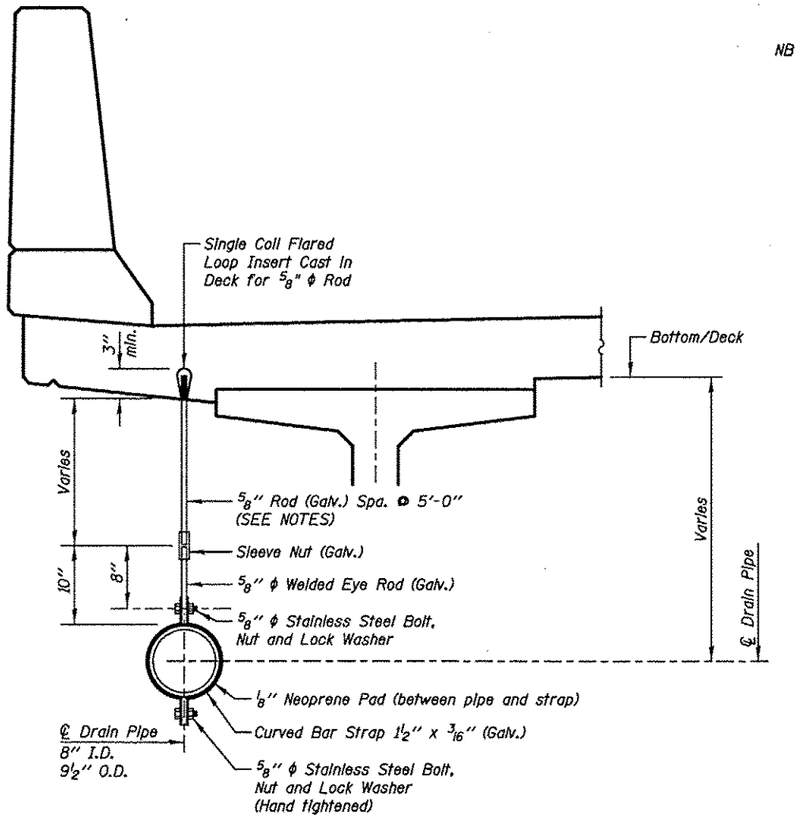
DRAINAGE SCUPPER, DS-11
S.N. 022-2029 (SB) TOLLWAY B.N. 826
S.N. 022-2030 (NB) TOLLWAY B.N. 825
SHEET NO. SA-36 OF 63 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
338	(112 & 113) WRS-5	DUPAGE	963	620
		CONTRACT NO. 60131		
	ILLINOIS FED. AID PROJECT			



DECK DRAINAGE SYSTEM

SB Bridge shown (Drainage System, No. 1)
NB Bridge opposite hand (Drainage System, No. 2)



LONGITUDINAL PIPE SUPPORT DETAIL

NOTES

See Sheet SA-20 and SA-25 for Drainage Scupper spacing.

All Pipe Hangers, Supports and Hardware shall be hot-dipped galvanized in accordance with AASHTO M232 (ASTM A153). All bolts, nuts and washers shall be stainless steel.

Pipe hangers shall be provided on all horizontal pipes at each tee, elbow or change in direction and at intermediate points as specified by the manufacturer, but not to exceed 5'-0" on centers. Pipe hangers shall have a load capacity of not less than 500 lbs.

The Deck Drainage System for the SB Bridge (022-2029) will be paid for as Drainage System, No. 1.

The Deck Drainage System for the NB Bridge (022-2030) will be paid for as Drainage System, No. 2.

BILL OF MATERIAL

Item	Unit	Quantity
Drainage System, No. 1	Each	1
Drainage System, No. 2	Each	1

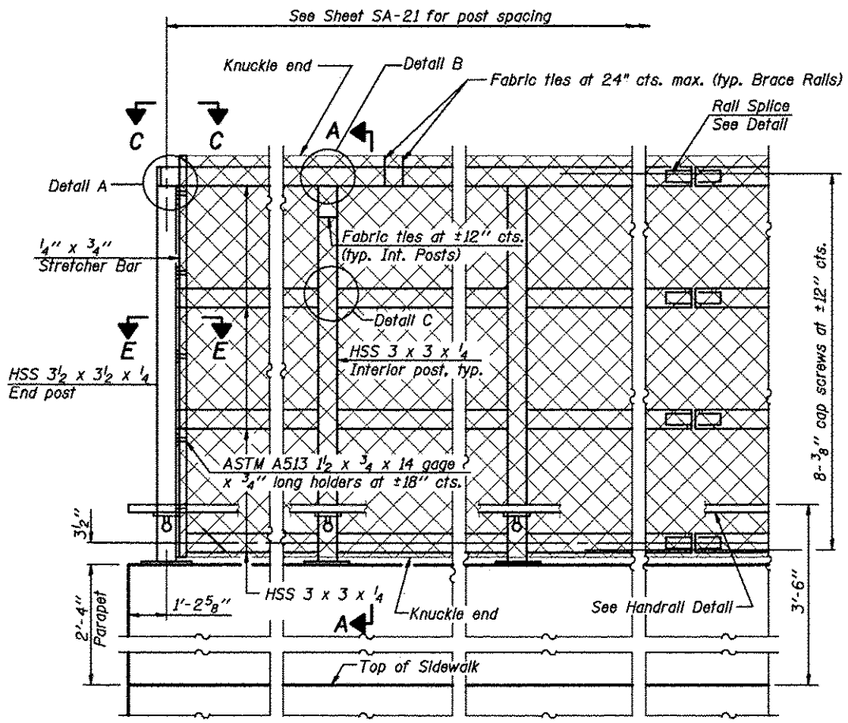
KNIGHT Engineers & Architects

		DESIGNED - WPM	REVISED
		CHECKED - TB	REVISED
SCALE - NONE		DRAWN - TB	REVISED
DATE - 10/15/2012		CHECKED - WPM	REVISED

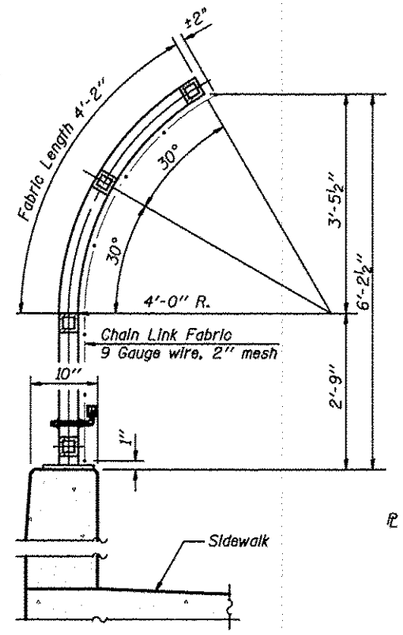
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

DECK DRAINAGE SYSTEM
S.N. 022-2029 (SB) TOLLWAY B.N. 826
S.N. 022-2030 (NB) TOLLWAY B.N. 825
SHEET NO. SA-37 OF 63 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
338	(112 & 113) WRS-5	DUPAGE	963	621
		CONTRACT NO. 60131		
	ILLINOIS FED. AID PROJECT			

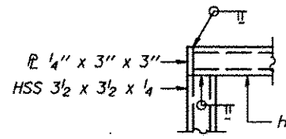


ELEVATION
(Inside Face)

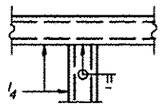


SECTION A-A

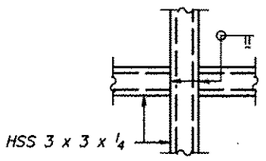
Note:
All steel rail elements shall be galvanized according to Article 509.05 of the Standard Specifications.



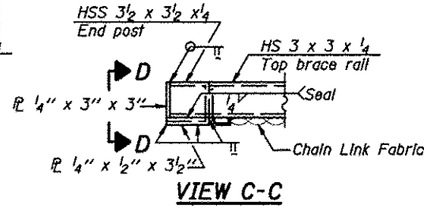
DETAIL A



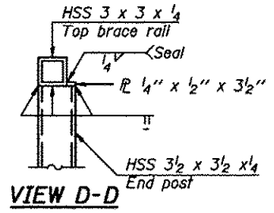
DETAIL B



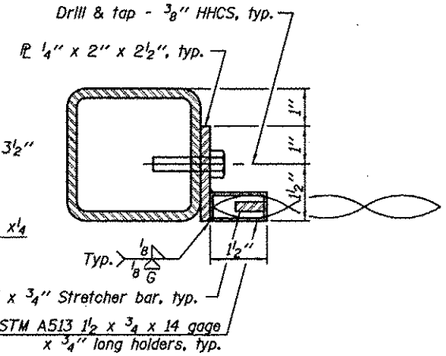
DETAIL C

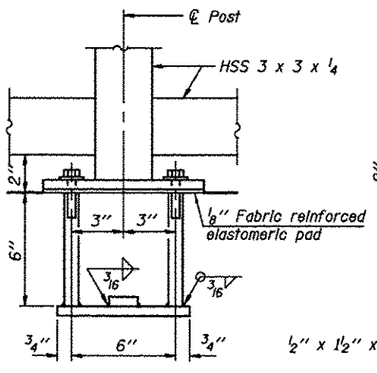


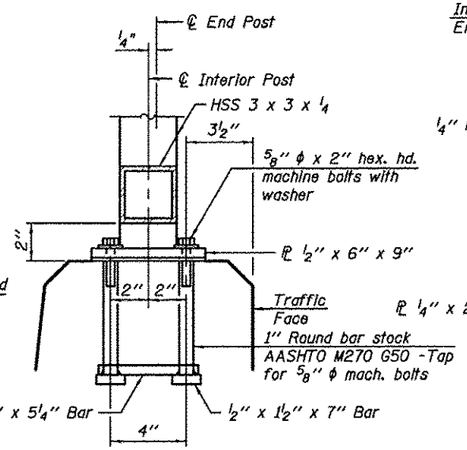
VIEW C-C



VIEW D-D

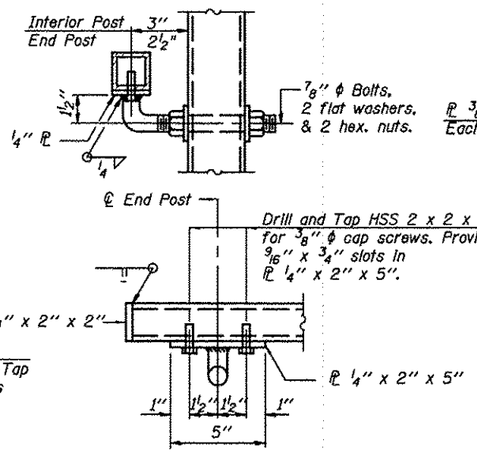




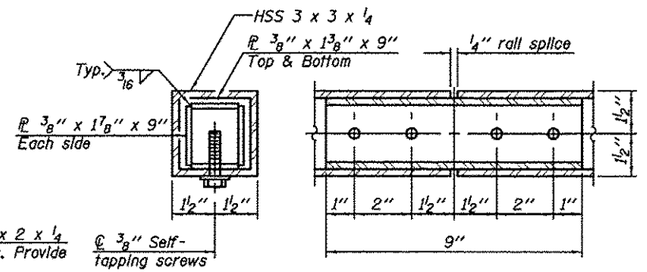


ANCHOR BOLT DETAILS

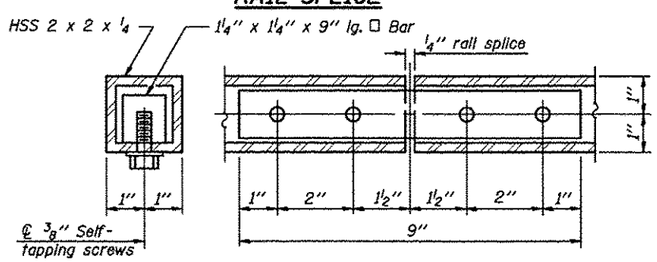
In lieu of the cast-in-place anchor device shown, the Contractor has the option of drilling and setting 5/8" ϕ anchor rods according to Article 509.06 of the Standard Specifications. Embedment shall be according to the manufacturer's specifications.



HANDRAIL DETAIL

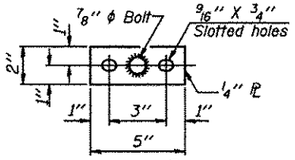


RAIL SPLICE

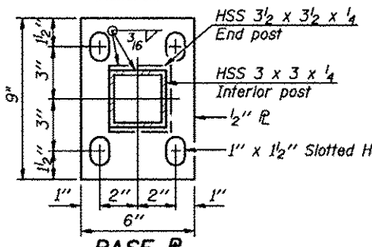


HANDRAIL SPLICE

SECTION E-E



BASE PL
(Handrail)



BASE PL

BILL OF MATERIAL

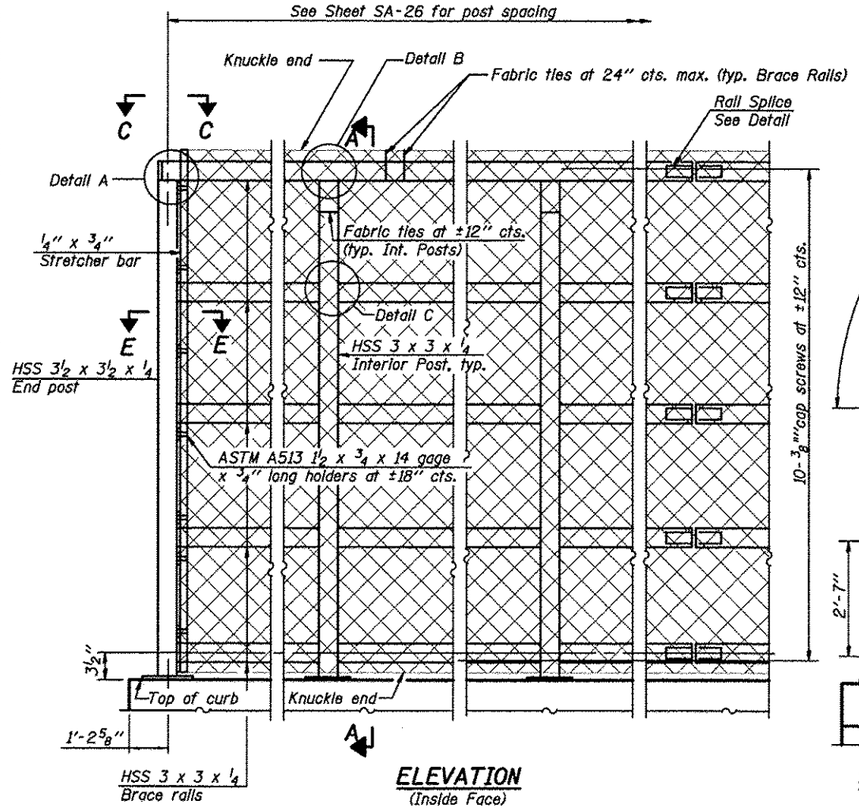
Item	Unit	Quantity
Bridge Fence Railing	Foot	251.0

KNIGHT Engineers & Architects		DESIGNED - WPM	REVISED	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION
		CHECKED - TB	REVISED	
	SCALE - NONE	DRAWN - TB	REVISED	
	DATE - 10/15/2012	CHECKED - WPM	REVISED	

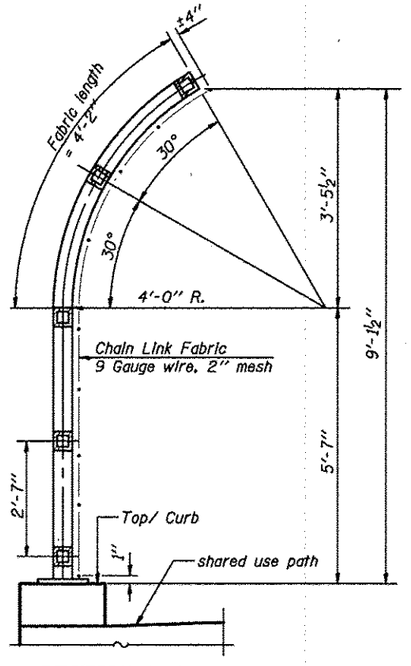
BRIDGE FENCE RAILING, PARAPET MOUNTED
S.N. 022-2029 (SB) TOLLWAY B.N. 826
S.N. 022-2030 (NB) TOLLWAY B.N. 825
SHEET NO. SA-38 OF 63 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
338	(112 & 113) WRS-5	DUPAGE	963	622

CONTRACT NO. 60131
ILLINOIS FED. AID PROJECT

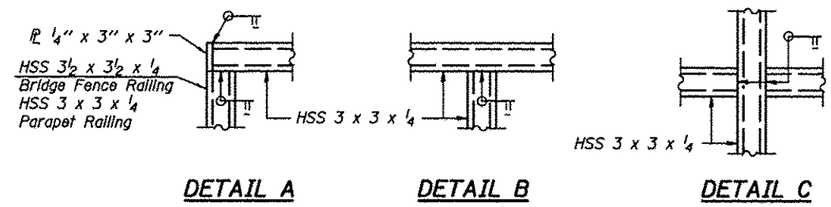


ELEVATION
(Inside Face)



SECTION A-A

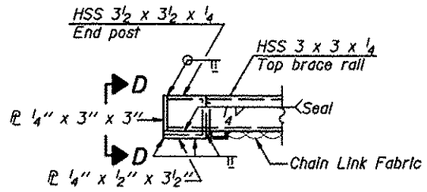
Note:
All steel rail elements shall be galvanized according to Article 509.05 of the Standard Specifications.



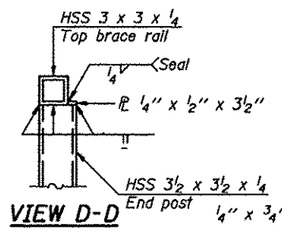
DETAIL A

DETAIL B

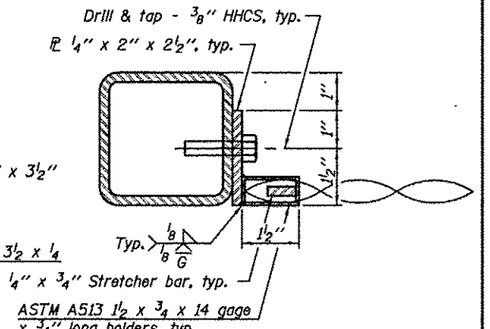
DETAIL C



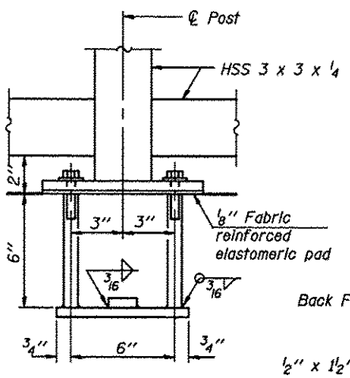
VIEW C-C

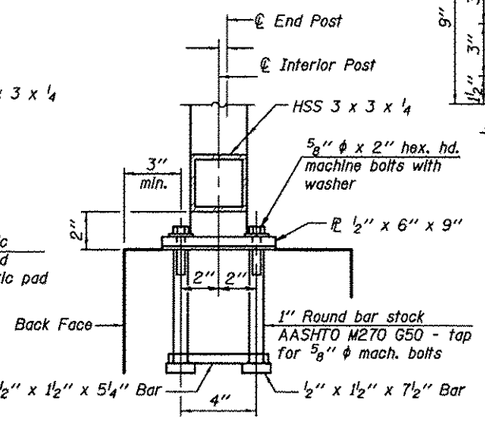


VIEW D-D



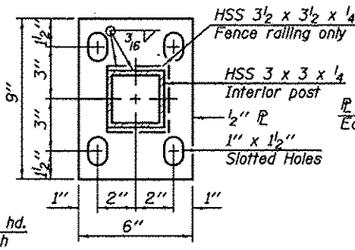
SECTION E-E



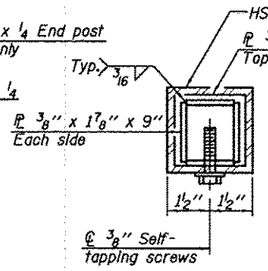


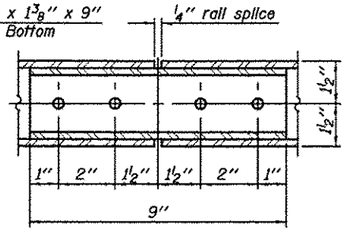
ANCHOR BOLT DETAILS

In lieu of the cast-in-place anchor device shown, the Contractor has the option of drilling and setting 5/8" ϕ anchor rods according to Article 509.06 of the Standard Specifications. Embedment shall be according to the manufacturer's specifications.

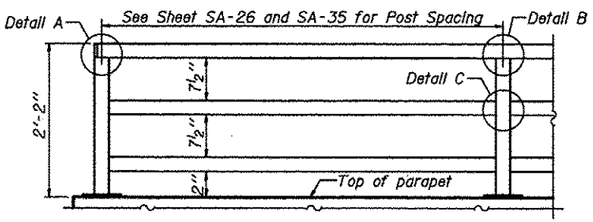


BASE PL

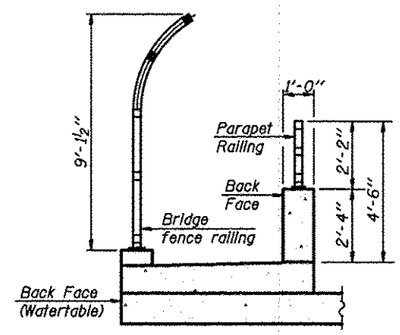




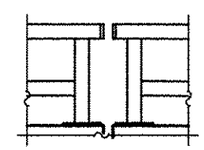
RAIL SPLICE



PARAPET RAILING ELEVATION
(Inside Face of Three Element Rail)



SECTION THRU SIDEWALK



PARAPET RAILING ELEVATION AT EXPANSION JOINT
(Two element rail shown - Three element rail similar)

BILL OF MATERIAL

Item	Unit	Quantity
Bridge Fence Railing (Sidewalk)	Foot	251.0
Parapet Railing	Foot	312.0

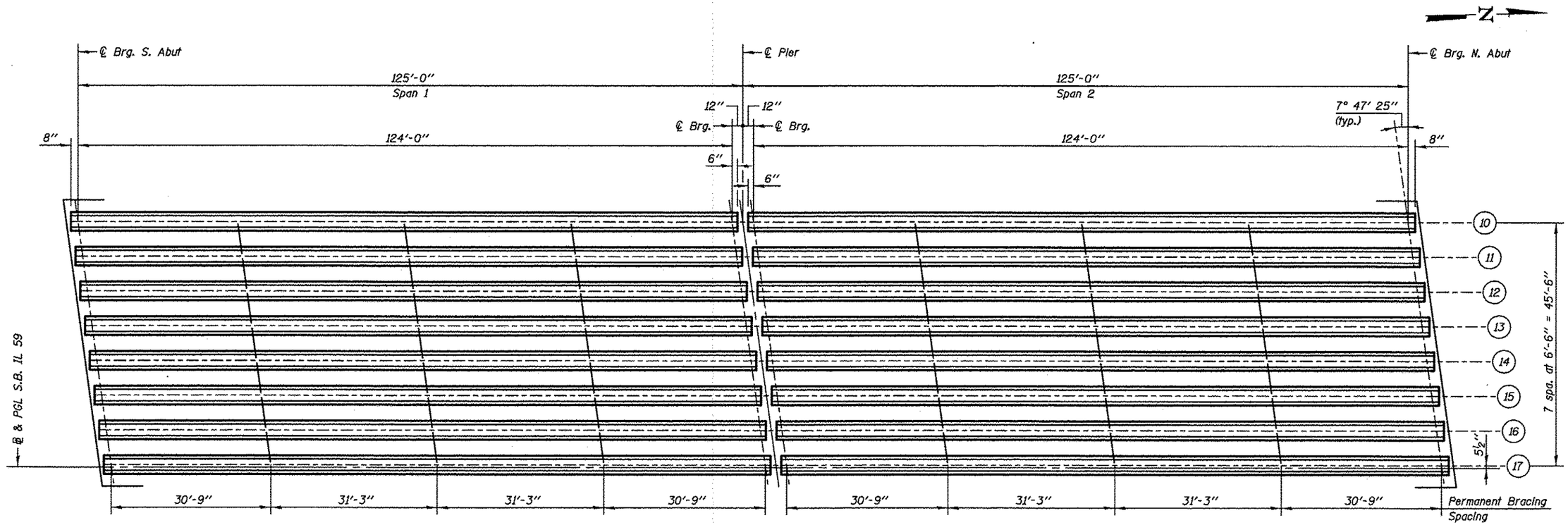
KNIGHT Engineers & Architects

		DESIGNED - WPM	REVISED
		CHECKED - TB	REVISED
SCALE - NONE		DRAWN - TB	REVISED
DATE - 10/15/2012		CHECKED - WPM	REVISED

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

BRIDGE FENCE RAILING, SIDEWALK MOUNTED
S.N. 022-2029 (SB) TOLLWAY B.N. 826
S.N. 022-2030 (NB) TOLLWAY B.N. 825
SHEET NO. SA-39 OF 63 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
338	(112 & 113) WRS-5	DUPAGE	963	623
		CONTRACT NO. 60131		
		ILLINOIS FED. AID PROJECT		



FRAMING PLAN
(SB Bridge)

INTERIOR BEAM MOMENT TABLE			
		0.4 Span 1 0.6 Span 2	Pier
I	(in^4)	545894	-
I'	(in^4)	977244	977244
S_b	(in^3)	14915	-
S_b'	(in^3)	19236	19236
S_t	(in^3)	15421	-
S_t'	(in^3)	46104	46104
$DC1$	(k/')	1.45	1.45
M_{DC1}	('k)	2717	-
$DC2$	(k/')	0.21	0.21
M_{DC2}	('k)	235	413
DW	(k/')	0.29	0.29
M_{DW}	('k)	317	556
M_{L+IM}	('k)	1797	1703

EXTERIOR BEAM 17 MOMENT TABLE			
		0.4 Span 1 0.6 Span 2	Pier
I	(in^4)	545894	-
I'	(in^4)	1002942	1002942
S_b	(in^3)	14915	-
S_b'	(in^3)	19419	19419
S_t	(in^3)	15421	-
S_t'	(in^3)	49277	49277
$DC1$	(k/')	1.51	1.51
M_{DC1}	('k)	2834	-
$DC2$	(k/')	0.21	0.21
M_{DC2}	('k)	235	413
DW	(k/')	0.29	0.29
M_{DW}	('k)	317	556
M_{L+IM}	('k)	1870	1772

INTERIOR BEAM REACTION TABLE			
		Abutment	Pier
R_{DC1}	(k)	90.6	181.2
* R_{DC2}	(k)	10.0	33.4
* R_{DW}	(k)	13.5	44.8
* R_{L+IM}	(k)	89.0	179.8
R_{Total}	(k)	203.1	439.2

EXTERIOR BEAM 17 REACTION TABLE			
		Abutment	Pier
R_{DC1}	(k)	94.5	189.0
* R_{DC2}	(k)	10.0	33.4
* R_{DW}	(k)	13.5	44.8
* R_{L+IM}	(k)	75.1	153.1
R_{Total}	(k)	193.1	420.3

I: Non-composite moment of inertia of beam section ($in.^4$).
I': Composite moment of inertia of beam section ($in.^4$).

S_b: Non-composite section modulus for the bottom fiber of the prestressed beam ($in.^3$).
S_b': Composite section modulus for the bottom fiber of the prestressed beam ($in.^3$).

S_t: Non-composite section modulus for the top fiber of the prestressed beam ($in.^3$).
S_t': Composite section modulus for the top fiber of the prestressed beam ($in.^3$).

$DC1$: Un-factored non-composite dead load (kips/ft.).
M_{DC1}: Un-factored moment due to non-composite dead load (kip-ft.).

$DC2$: Un-factored long-term composite (superimposed excluding future wearing surface) dead load (kips/ft.).
M_{DC2}: Un-factored moment due to long-term composite (superimposed excluding future wearing surface) dead load (kip-ft.).

DW: Un-factored long-term composite (superimposed future wearing surface only) dead load (kips/ft.).
M_{DW}: Un-factored moment due to long-term composite (superimposed future wearing surface only) dead load (kip-ft).

M_{L+IM}: Un-factored live load moment plus dynamic load allowance (impact) (kip-ft.).

* At continuous piers, reactions from composite loads are assumed to be equally distributed to each bearing line.

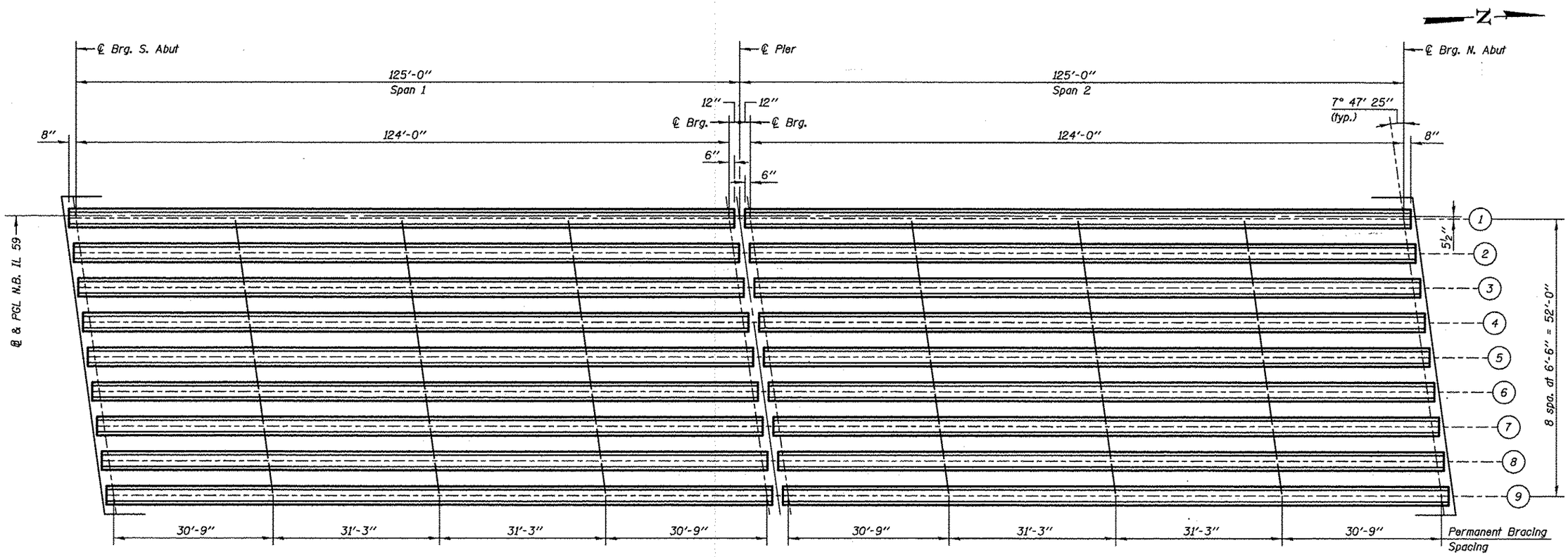
KNIGHT
Engineers & Architects

SCALE - NONE	DESIGNED - WPM	REVISED	
	CHECKED - TB	REVISED	
	DRAWN - TB	REVISED	
DATE - 10/15/2012	CHECKED - WPM	REVISED	

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

FRAMING PLAN (SB)
S.N. 022-2029 (SB) TOLLWAY B.N. 826
S.N. 022-2030 (NB) TOLLWAY B.N. 825
SHEET NO. SA-40 OF 63 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
338	(112 & 113) WRS-5	DUPAGE	963	624
		CONTRACT NO. 60131		
	ILLINOIS FED. AID PROJECT			



FRAMING PLAN
(NB Bridge)

INTERIOR BEAM MOMENT TABLE			
		0.4 Span 1 0.6 Span 2	Pier
I	(in^4)	545894	-
I'	(in^4)	977244	977244
S_b	(in^3)	14915	-
S_b'	(in^3)	19236	19236
S_t	(in^3)	15421	-
S_t'	(in^3)	46104	46104
DC1	(k/')	1.45	1.45
M_{DC1}	('k)	2717	-
DC2	(k/')	0.26	0.26
M_{DC2}	('k)	286	503
DW	(k/')	0.26	0.26
M_{DW}	('k)	282	494
M_{L+IM}	('k)	1797	1703

EXTERIOR BEAM 1 MOMENT TABLE			
		0.4 Span 1 0.6 Span 2	Pier
I	(in^4)	545894	-
I'	(in^4)	1002942	1002942
S_b	(in^3)	14915	-
S_b'	(in^3)	19419	19419
S_t	(in^3)	15421	-
S_t'	(in^3)	49277	49277
DC1	(k/')	1.51	1.51
M_{DC1}	('k)	2834	-
DC2	(k/')	0.26	0.26
M_{DC2}	('k)	286	503
DW	(k/')	0.26	0.26
M_{DW}	('k)	282	494
M_{L+IM}	('k)	1870	1772

INTERIOR BEAM REACTION TABLE			
		Abutment	Pier
R_{DC1}	(k)	90.6	181.2
* R_{DC2}	(k)	12.2	40.6
* R_{DW}	(k)	12.0	39.8
* R_{L+IM}	(k)	89.0	179.8
R_{Total}	(k)	203.8	441.4

EXTERIOR BEAM 1 REACTION TABLE			
		Abutment	Pier
R_{DC1}	(k)	94.5	189.0
* R_{DC2}	(k)	12.2	40.6
* R_{DW}	(k)	12.0	39.8
* R_{L+IM}	(k)	75.1	153.1
R_{Total}	(k)	193.8	422.5

I: Non-composite moment of inertia of beam section ($in.^4$).
I': Composite moment of inertia of beam section ($in.^4$).

S_b: Non-composite section modulus for the bottom fiber of the prestressed beam ($in.^3$).
S_b': Composite section modulus for the bottom fiber of the prestressed beam ($in.^3$).

S_t: Non-composite section modulus for the top fiber of the prestressed beam ($in.^3$).
S_t': Composite section modulus for the top fiber of the prestressed beam ($in.^3$).

DC1: Un-factored non-composite dead load (kips/ft.).
M_{DC1}: Un-factored moment due to non-composite dead load (kip-ft.).

DC2: Un-factored long-term composite (superimposed excluding future wearing surface) dead load (kips/ft.).
M_{DC2}: Un-factored moment due to long-term composite (superimposed excluding future wearing surface) dead load (kip-ft.).

DW: Un-factored long-term composite (superimposed future wearing surface only) dead load (kips/ft.).
M_{DW}: Un-factored moment due to long-term composite (superimposed future wearing surface only) dead load (kip-ft).

M_{L+IM}: Un-factored live load moment plus dynamic load allowance (impact) (kip-ft.).

* At continuous piers, reactions from composite loads are assumed to be equally distributed to each bearing line.

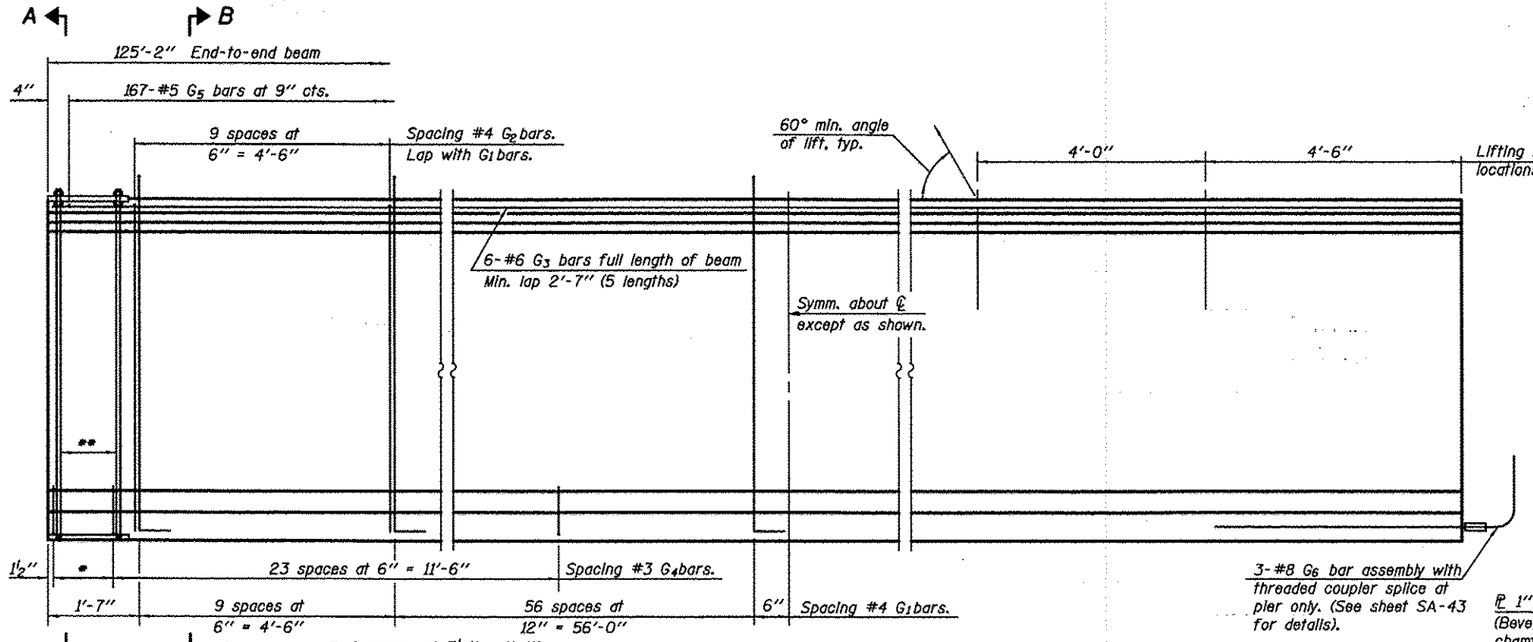
KNIGHT
Engineers & Architects

SCALE - NONE	DESIGNED - WPM	REVISED	
DATE - 10/15/2012	CHECKED - TB	REVISED	
	DRAWN - TB	REVISED	
	CHECKED - WPM	REVISED	

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

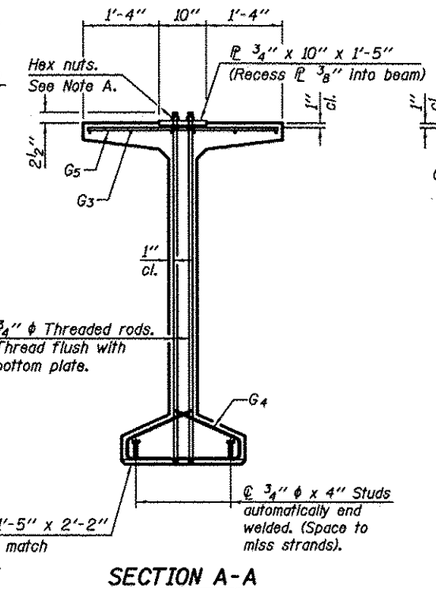
FRAMING PLAN (NB)
S.N. 022-2029 (SB) TOLLWAY B.N. 826
S.N. 022-2030 (NB) TOLLWAY B.N. 825
SHEET NO. SA-41 OF 63 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
338	(112 & 113) WRS-5	DUPAGE	963	625
		CONTRACT NO. 60131		
	ILLINOIS FED. AID PROJECT			

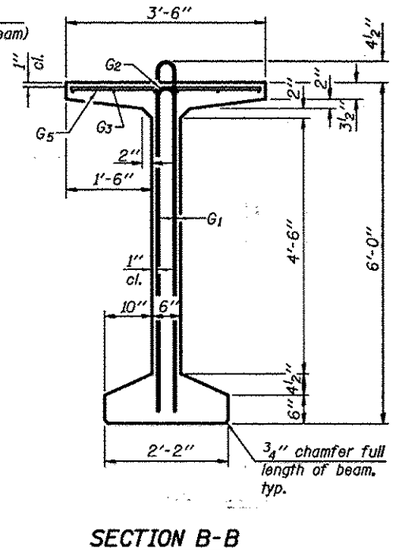


* 4 spaces at 3¼" = 1'-1".
** 5-¾" ϕ threaded dowel rods at 3¼" cts., each face.

ELEVATION OF BEAM
(Showing reinforcement & dimensions)

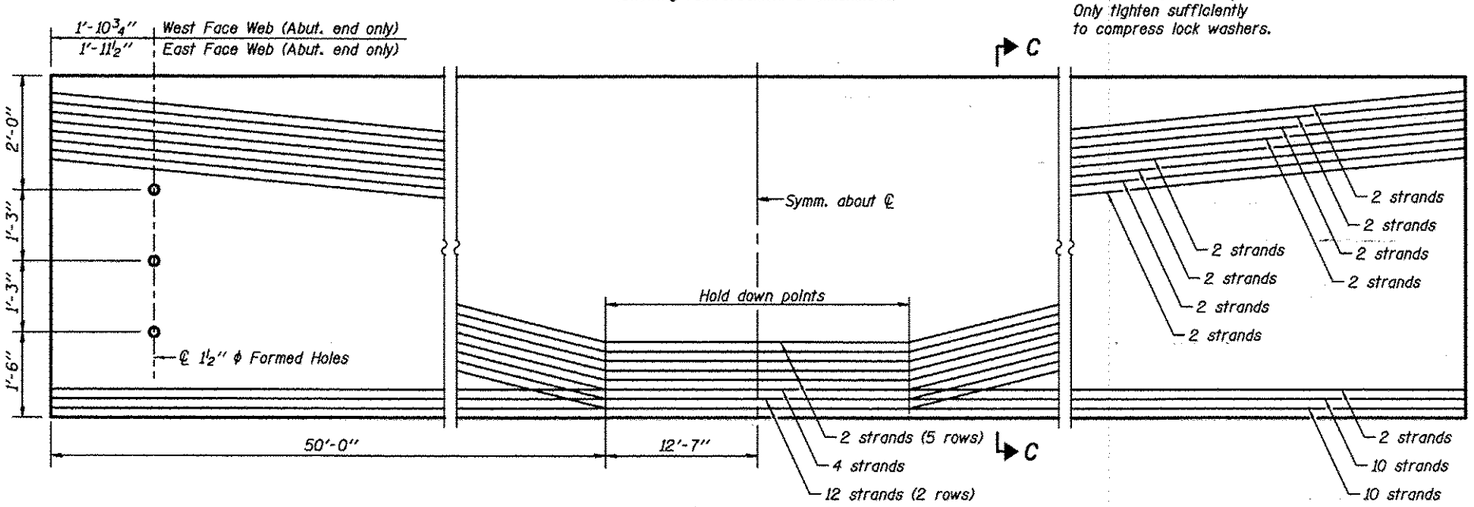


SECTION A-A

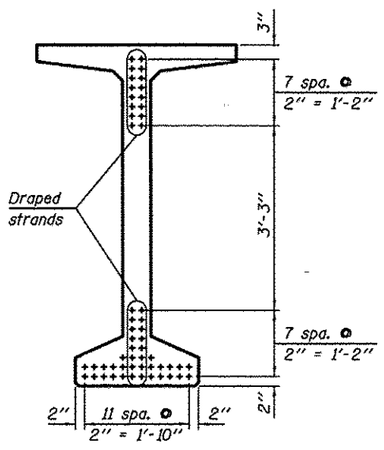


SECTION B-B

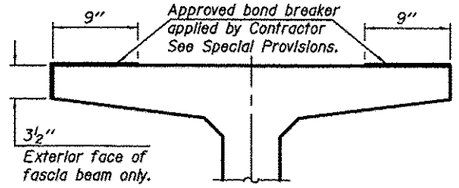
Note A:
Hex nuts (top and bottom) with lock washers (top). Only tighten sufficiently to compress lock washers.



ELEVATION OF BEAM
(Showing prestressing steel)



SECTION C-C



SECTION THRU TOP FLANGE
(Showing limits of bond breaker)

***BAR LIST
ONE BEAM ONLY

Bar	No.	Size	Length	Shape
G_1	132	#4	13'-5"	
G_2	20	#4	11'-8"	
G_3	30	#6	27'-3"	
G_4	56	#3	4'-11"	
G_5	167	#5	3'-4"	
G_6	3	#8	6'-6"	

***For information only

Notes:
See sheet SA-43 for additional details and Bill of Material.

Required release strength, f'ci, shall be 5200 psi.

Apply approved bond breaker as shown in Section thru Top Flange full length of beam. See Special Provisions.

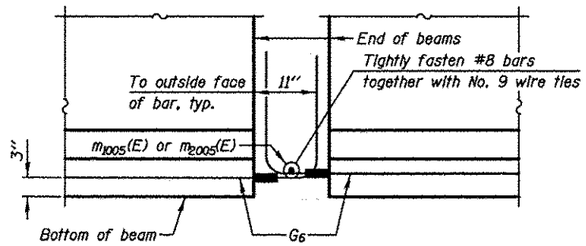
PBT-4-72 4-16-12

KNIGHT Engineers & Architects		DESIGNED - WPM	REVISED
		CHECKED - TB	REVISED
	SCALE - NONE	DRAWN - TB	REVISED
	DATE - 10/15/2012	CHECKED - WPM	REVISED

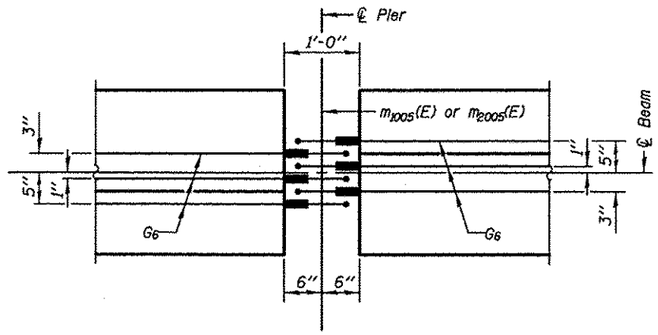
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

72" PPC BULB T-BEAM
S.N. 022-2029 (SB) TOLLWAY B.N. 826
S.N. 022-2030 (NB) TOLLWAY B.N. 825
SHEET NO. SA-42 OF 63 SHEETS

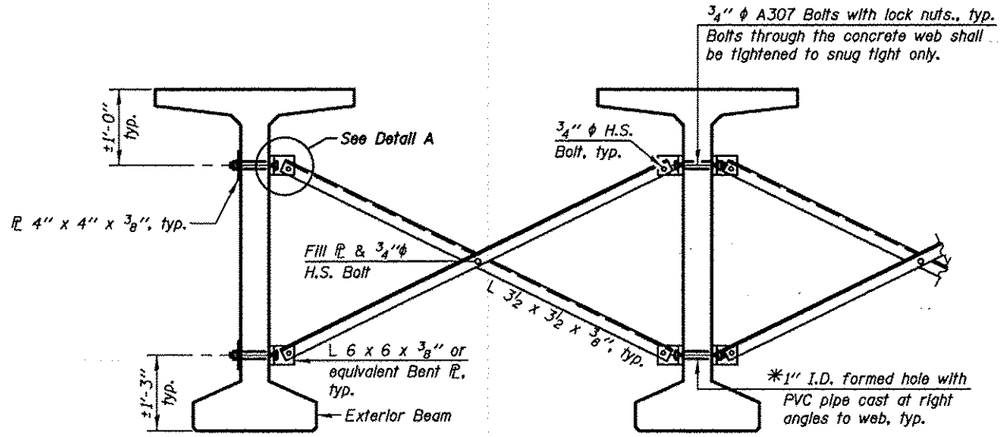
F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
338	(112 & 113) WRS-5	DUPAGE	963	626
		CONTRACT NO. 60131		
	ILLINOIS FED. AID PROJECT			



ELEVATION OF BEAM AT PIER



PLAN OF BEAM AT PIER



Permanent Bracing Notes:

All material for bracing shall be hot dip galvanized according to AASHTO M111 unless otherwise noted.

Two hardened washers are required for each set of oversized holes.

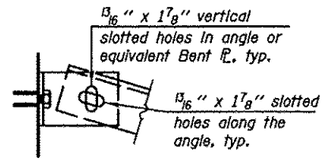
All holes shall be $^{15}/_{16}$"ϕ unless otherwise noted.

$^5/_{16}$" x 3" x 3" plate washers are required over all slotted holes.

All bolts shall be galvanized according to AASHTO M232.

Bracing shall be installed as beams are erected and tightened as soon as possible during erection.

Permanent bracing shall not be paid for separately, but shall be included in the cost of Furnishing and Erecting Precast Prestressed Concrete Bulb T-Beams.



DETAIL A

*Fabricator shall locate to miss strands within permissible tolerances.

PERMANENT BRACING DETAILS FOR BULB-T BEAMS

NOTES

Inserts for $^3/_4$" ϕ threaded dowel rods, when specified, are to be two strut, ferrule type for interior beams and single ferrule, flared loop type for exterior beams.

Prestressing steel shall be uncoated high strength, low relaxation 7-wire strand, Grade 270. The nominal diameter shall be $^1/_2$" and the nominal cross-sectional area shall be 0.153 sq. in.

A minimum 2$^1/_2$" ϕ lifting pin shall be used to engage the lifting loops during handling.

Tilt G_6 bars when necessary to maintain 1$^1/_2$" clearance.

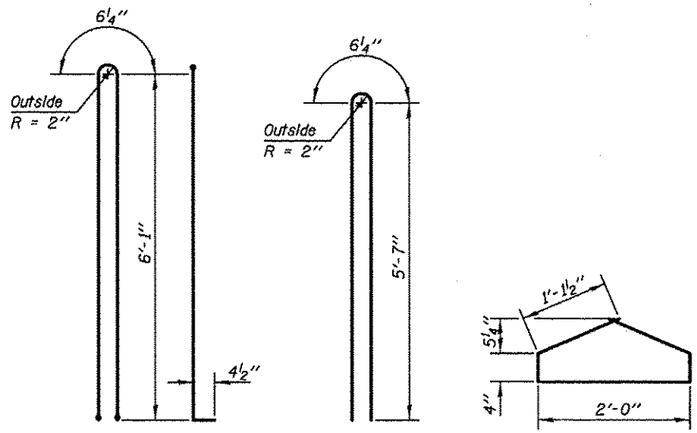
The top and bottom plates shall be AASHTO M270 Grade 50.

The bottom plates and studs shall be galvanized according to AASHTO M111. Top plates and threaded rods need not be galvanized.

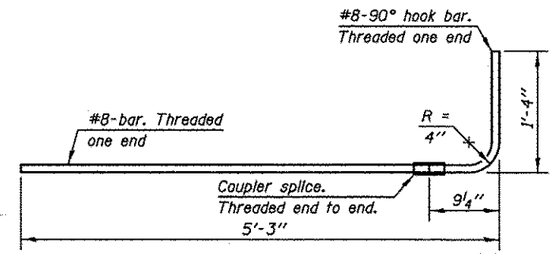
Threaded rods shall be ASTM F 1554 Grade 55.

The G_6 bar assembly shall be capable of developing 125 percent of the yield strength of the grade 60 reinforcement bar components. The assembly shall allow completion of the splice without turning of the hook bar. The hook bar shall be threaded such that the entire coupler can be threaded onto the hook bar.

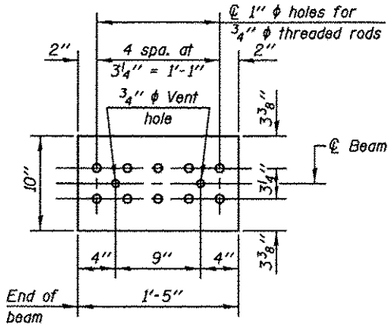
Beams requiring G_6 bar assemblies shall not be released from the fabricator until they have attained 45 days of age or older.



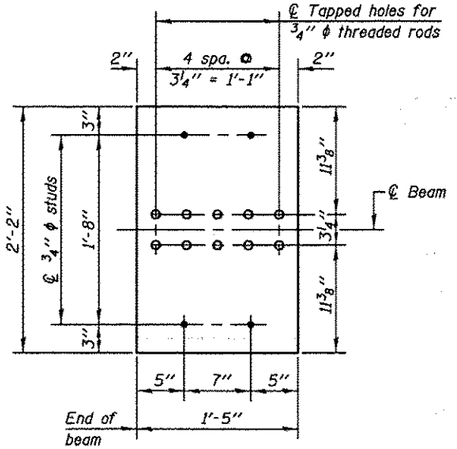
BAR G_1 BAR G_2 BAR G_4



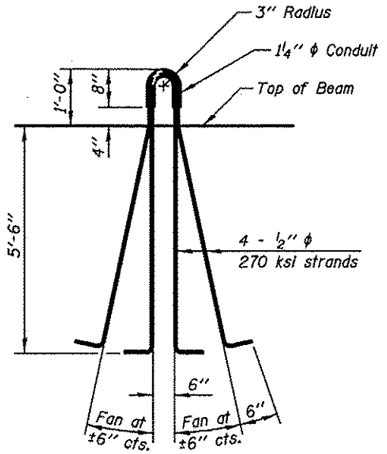
G_6 BAR ASSEMBLY



TOP PLATE



BOTTOM PLATE



LIFTING LOOP DETAIL

BILL OF MATERIAL

Item	Unit	Total
Furnishing and Erecting Precast Prestressed Concrete Bulb T-Beams, 72"	Foot	4256.0

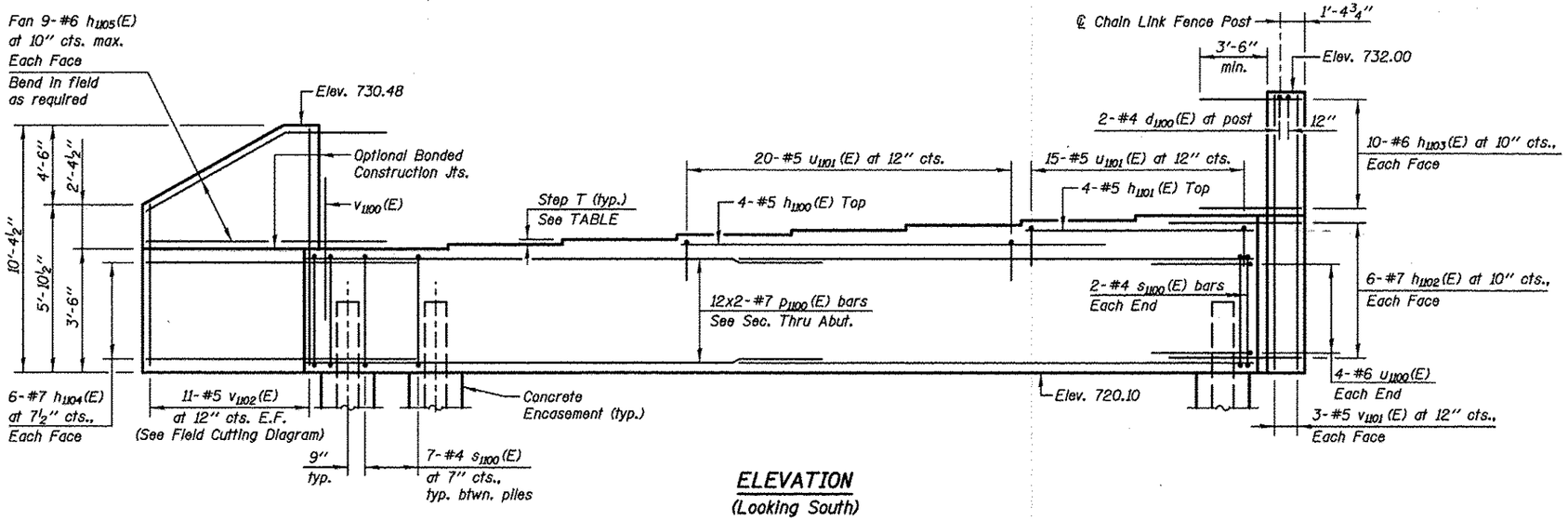
KNIGHT Engineers & Architects

	DESIGNED - WPM		REVISED
	CHECKED - TB		REVISED
SCALE - NONE	DRAWN - TB		REVISED
DATE - 10/15/2012	CHECKED - WPM		REVISED

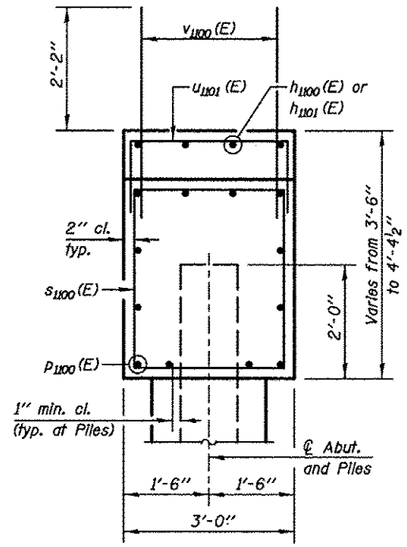
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

72" PPC BULB T-BEAM DETAILS
S.N. 022-2029 (SB) TOLLWAY B.N. 826
S.N. 022-2030 (NB) TOLLWAY B.N. 825
SHEET NO. SA-43 OF 63 SHEETS

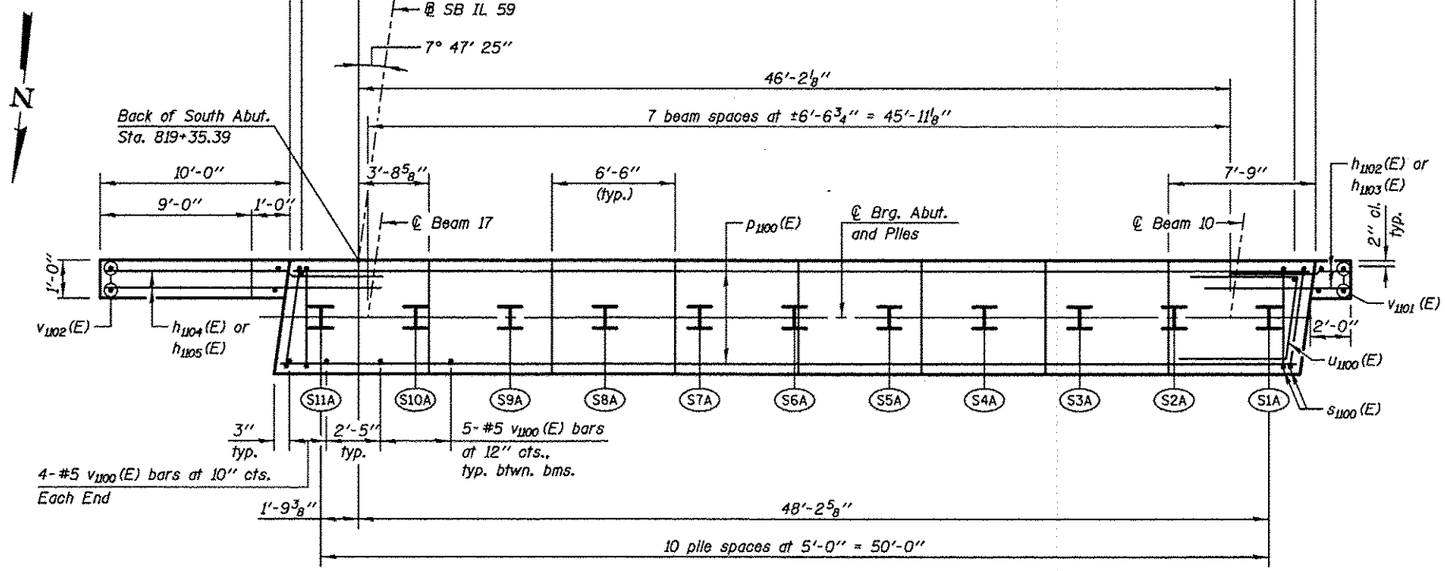
F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
338	(112 & 113) WRS-5	DUPAGE	963	627
		CONTRACT NO. 60I31		
	ILLINOIS FED. AID PROJECT			



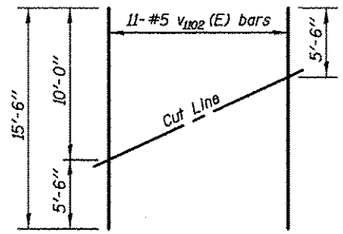
ELEVATION
(Looking South)



SEC. THRU ABUT.



PLAN - SOUTH ABUTMENT
(SB Bridge)

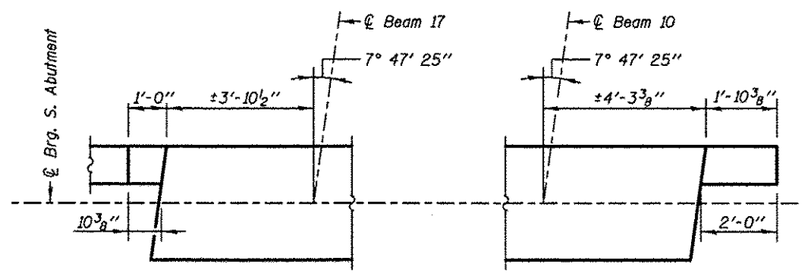


FIELD CUTTING DIAGRAM

Order v_{1102}(E) full length. Cut as shown and use remainder of bars in opposite face.

BEARING SEAT ELEVATIONS

BEAM	BRG. SEAT ELEVATION	STEP T- Inch
10	724.46	
11	724.32	1 5/8"
12	724.20	1 1/2"
13	724.07	1 1/2"
14	723.95	1 1/2"
15	723.82	1 1/2"
16	723.70	1 1/2"
17	723.58	1 3/8"



ABUTMENT CORNER DETAILS

PILE DATA

Type & Size: Steel HP 14x73
Nominal Required Bearing: 578 Kips
Factored Resistance Available: 318 Kips
Est. Length: 75 ft
No. Production Piles: 10
No. Test Piles: 1

NOTES

Pour steps monolithically with cap.

Bars indicated thus 20x3-#15 indicates 20 lines of bars with 3 lengths per line.

See Sheet SA-04 for additional Pile Layout details.

See Sheet SA-48 for details and Bill of Material.

See Sheet SA-49 for Chain Link Fence post spacing.

See Roadway Plans for additional Chain Link Fence details.

LEGEND

E.F. Each Face
(S1A) Pile Number

MIN. BAR LAP

Vertical Bars	Horizontal Bars
#5 - 2'-7"	#5 - 2'-11"
	#7 - 4'-8"

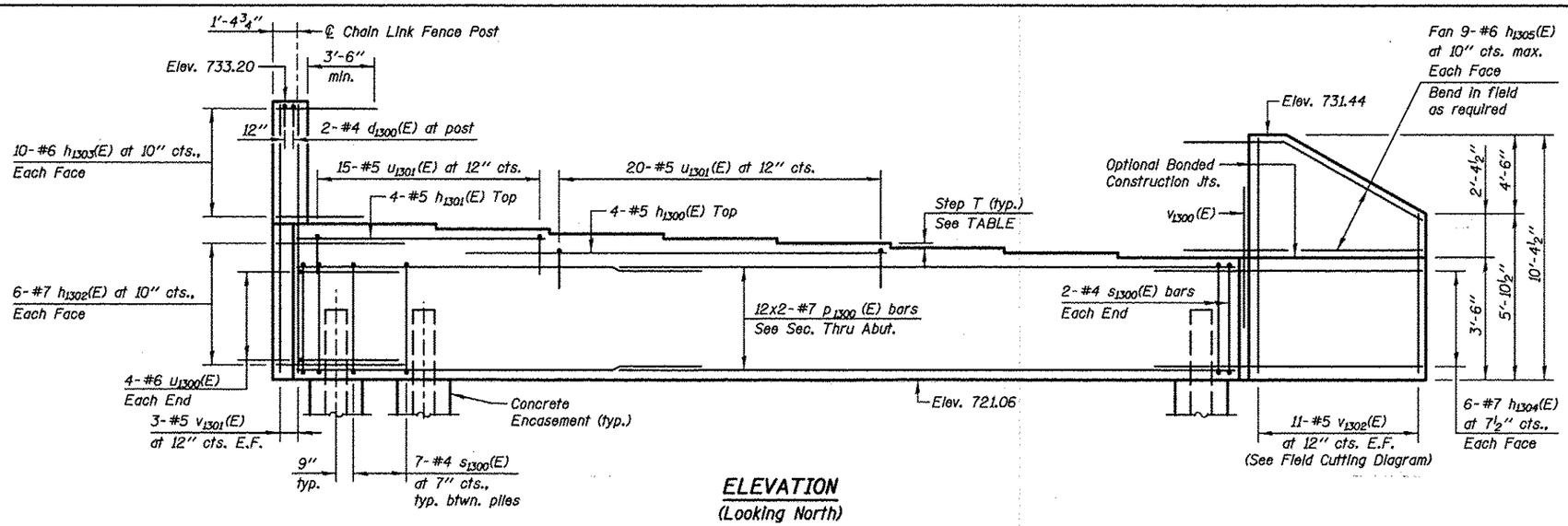
KNIGHT Engineers & Architects

		DESIGNED - WPM	REVISED
		CHECKED - TB	REVISED
SCALE - NONE		DRAWN - TB	REVISED
DATE - 10/15/2012		CHECKED - WPM	REVISED

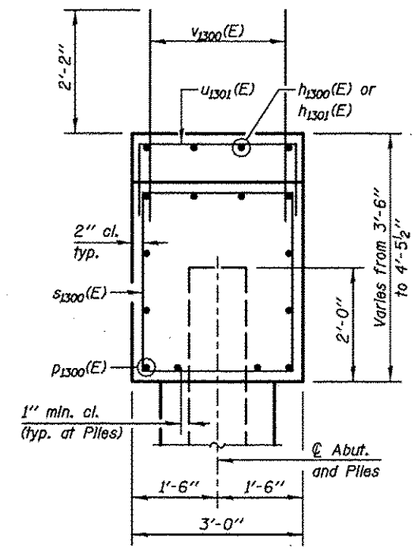
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

SOUTH ABUTMENT (SB)
S.N. 022-2029 (SB) TOLLWAY B.N. 826
S.N. 022-2030 (NB) TOLLWAY B.N. 825
SHEET NO. SA-44 OF 63 SHEETS

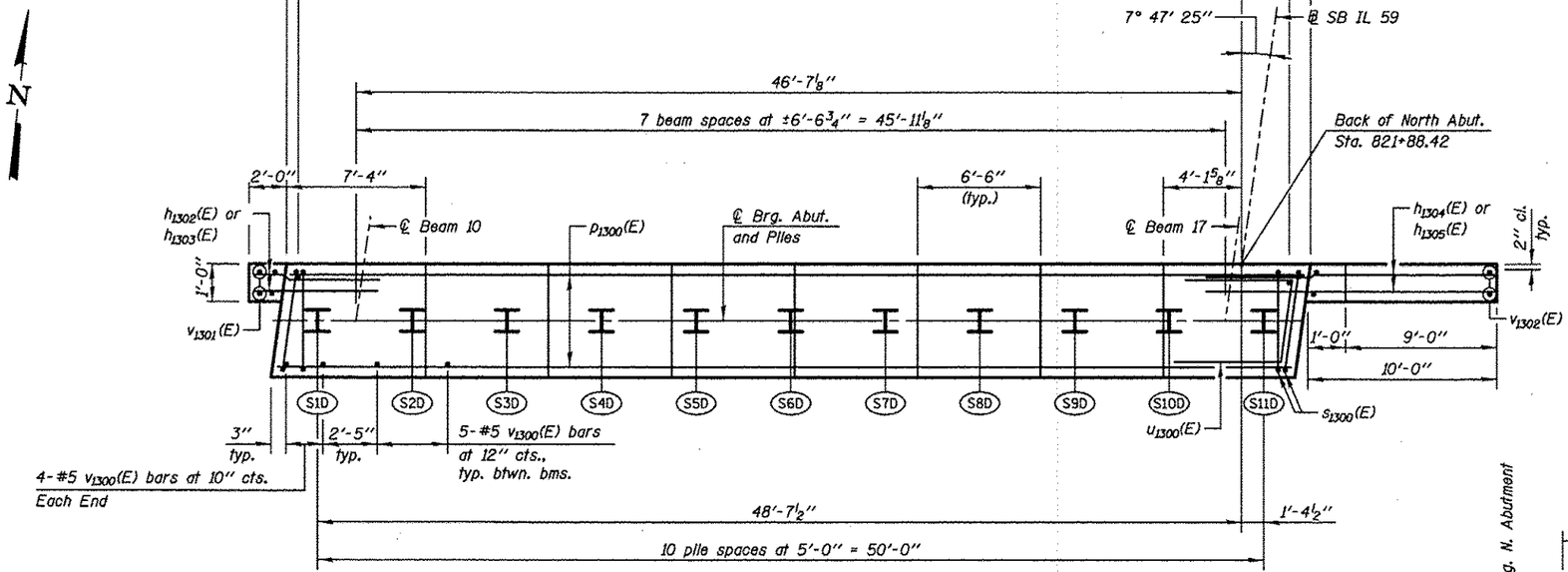
F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
338	(112 & 113) WRS-5	DUPAGE	963	628
		CONTRACT NO. 60131		
ILLINOIS FED. AID PROJECT				



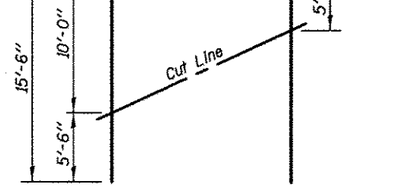
ELEVATION
(Looking North)



SEC. THRU ABUT.



PLAN - NORTH ABUTMENT
(SB Bridge)

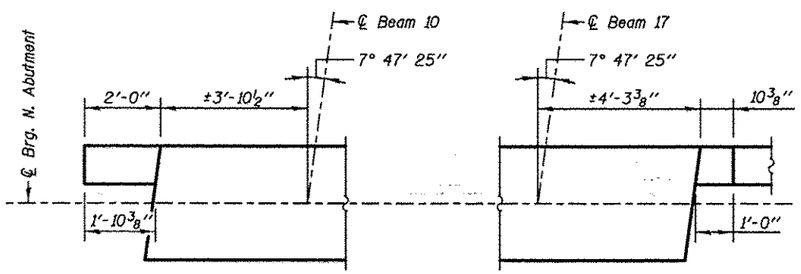


FIELD CUTTING DIAGRAM

Order v_{1302}(E) full length. Cut as shown and use remainder of bars in opposite face.

BEARING SEAT ELEVATIONS

BEAM	BRG. SEAT ELEVATION	STEP T- Inch
10	725.52	
11	725.37	1 3/4"
12	725.24	1 5/8"
13	725.10	1 5/8"
14	724.96	1 3/4"
15	724.82	1 5/8"
16	724.69	1 5/8"
17	724.56	1 1/2"



ABUTMENT CORNER DETAILS

PILE DATA

Type & Size: Steel HP 14x73
Nominal Required Bearing: 578 Kips
Factored Resistance Available: 318 Kips
Est. Length: 65 ft
No. Production Piles: 10
No. Test Piles: 1

NOTES

Pour steps monolithically with cap.

Bars indicated thus 20x3-#15 indicates 20 lines of bars with 3 lengths per line.

See Sheet SA-04 for additional Pile Layout details.

See Sheet SA-48 for details and Bill of Material.

See Sheet SA-50 for Chain Link Fence post spacing.

See Roadway Plans for additional Chain Link Fence details.

LEGEND

E.F. Each Face
(S1D) Pile Number

MIN. BAR LAP

Vertical Bars	Horizontal Bars
#5 - 2'-7"	#5 - 2'-11"
	#7 - 4'-8"

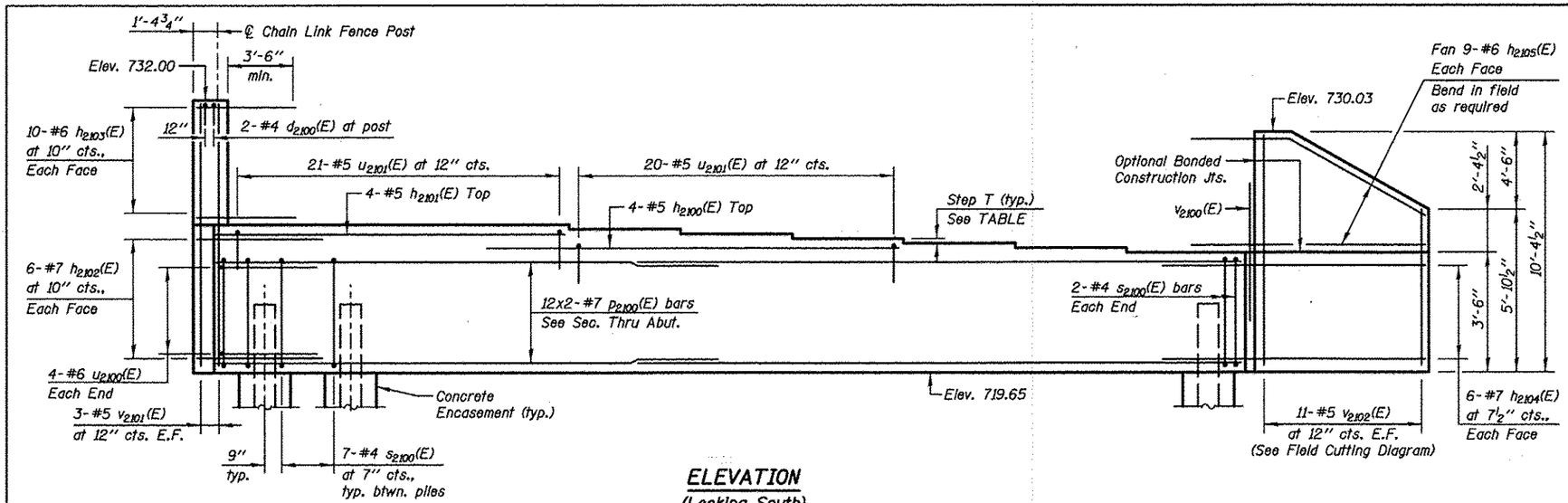
KNIGHT Engineers & Architects

		DESIGNED - WPM	REVISED
		CHECKED - TB	REVISED
SCALE - NONE		DRAWN - TB	REVISED
DATE - 10/15/2012		CHECKED - WPM	REVISED

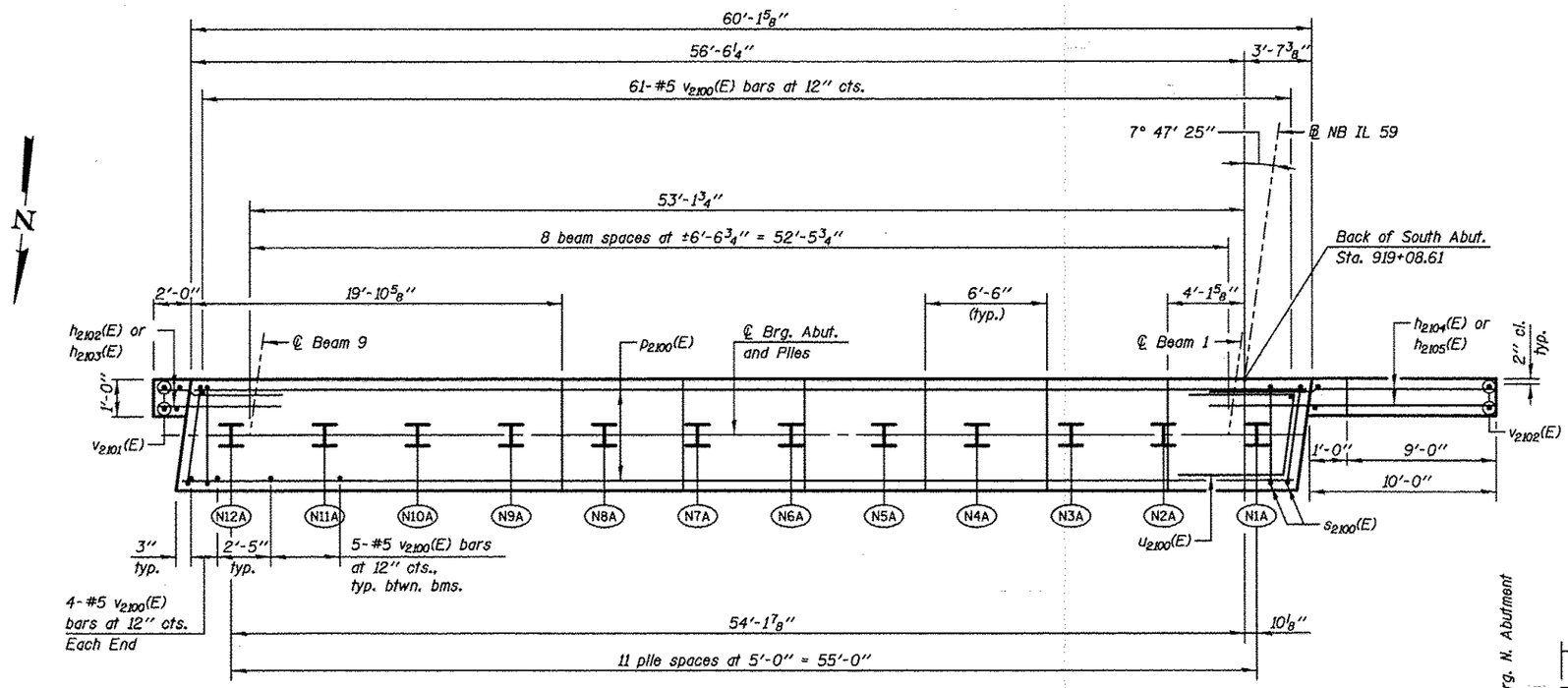
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

NORTH ABUTMENT (SB)
S.N. 022-2029 (SB) TOLLWAY B.N. 826
S.N. 022-2030 (NB) TOLLWAY B.N. 825
SHEET NO. SA-45 OF 63 SHEETS

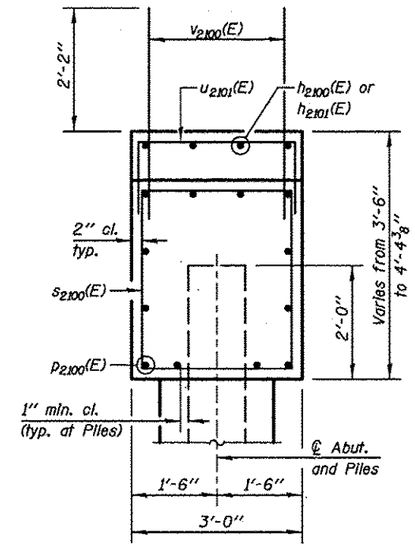
F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
338	(112 & 113) WRS-5	DUPAGE	963	629
		CONTRACT NO. 60131		
	ILLINOIS FED. AID PROJECT			



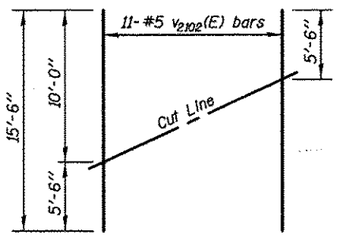
ELEVATION
(Looking South)



PLAN - SOUTH ABUTMENT
(NB Bridge)



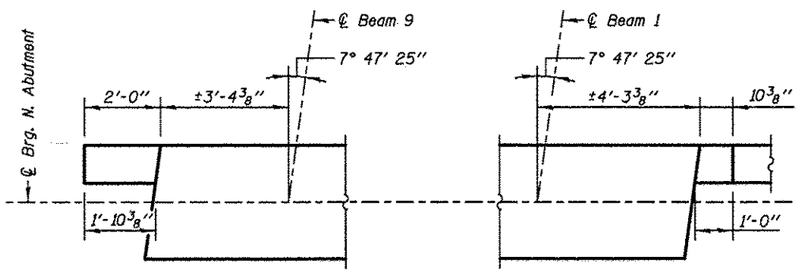
SEC. THRU ABUT.



FIELD CUTTING DIAGRAM
Order $v_{2102}(E)$ full length. Cut as shown and use remainder of bars in opposite face.

BEARING SEAT ELEVATIONS

BEAM	BRG. SEAT ELEVATION	STEP T- Inch
1	723.15	
2	723.29	1 5/8"
3	723.43	1 3/4"
4	723.58	1 3/4"
5	723.72	1 3/4"
6	723.87	1 3/4"
7	724.02	1 3/4"
8	724.02	
9	724.02	



ABUTMENT CORNER DETAILS

PILE DATA
Type & Size: Steel HP 14x73
Nominal Required Bearing: 499 Kips
Factored Resistance Available: 274 Kips
Est. Length: 60 ft
No. Production Piles: 11
No. Test Piles: 1

NOTES
Pour steps monolithically with cap.

Bars indicated thus 20x3-#15 indicates 20 lines of bars with 3 lengths per line.

See Sheet SA-04 for additional Pile Layout details.

See Sheet SA-48 for details and Bill of Material.

See Sheet SA-49 for Chain Link Fence post spacing.

See Roadway Plans for additional Chain Link Fence details.

LEGEND
E.F. Each Face
(N1A) Pile Number

MIN. BAR LAP

Vertical Bars	Horizontal Bars
#5 - 2'-7"	#5 - 2'-11"
	#7 - 4'-8"

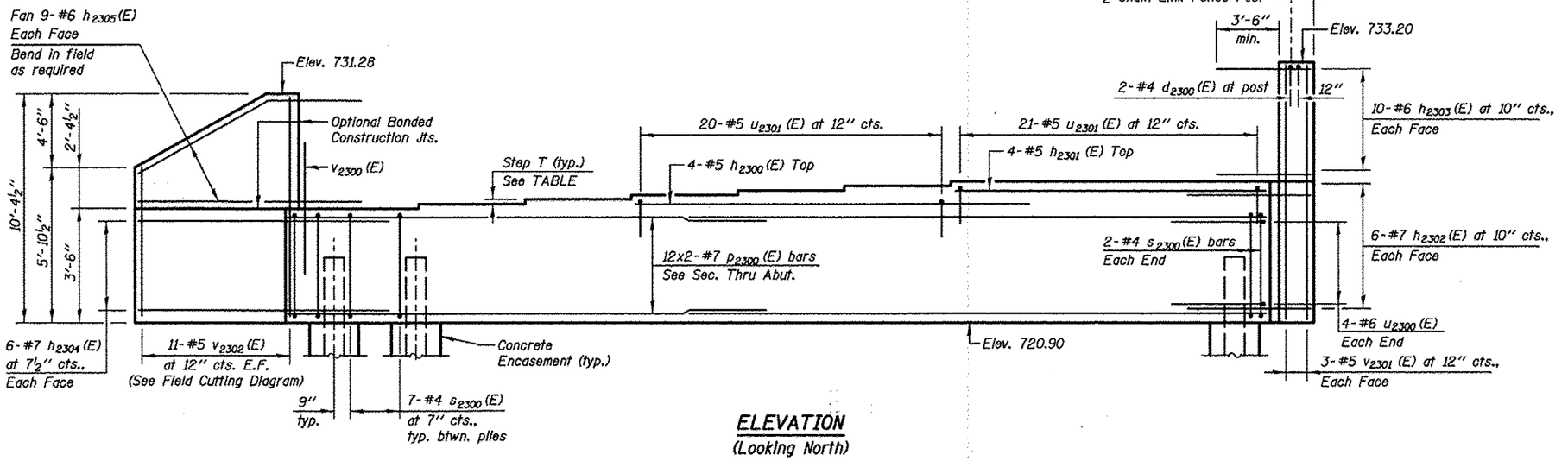
KNIGHT Engineers & Architects

		DESIGNED - WPM	REVISED
		CHECKED - TB	REVISED
SCALE - NONE		DRAWN - TB	REVISED
DATE - 10/15/2012		CHECKED - WPM	REVISED

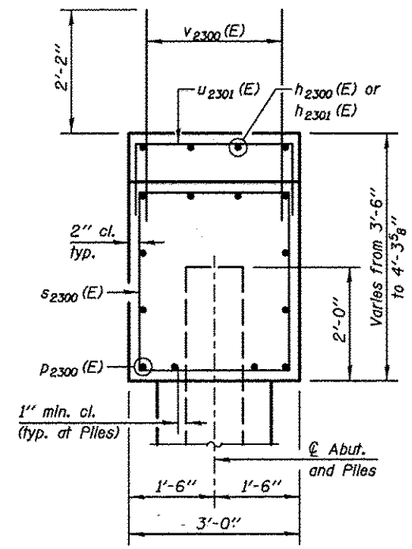
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

SOUTH ABUTMENT (NB)
S.N. 022-2029 (SB) TOLLWAY B.N. 826
S.N. 022-2030 (NB) TOLLWAY B.N. 825
SHEET NO. SA-46 OF 63 SHEETS

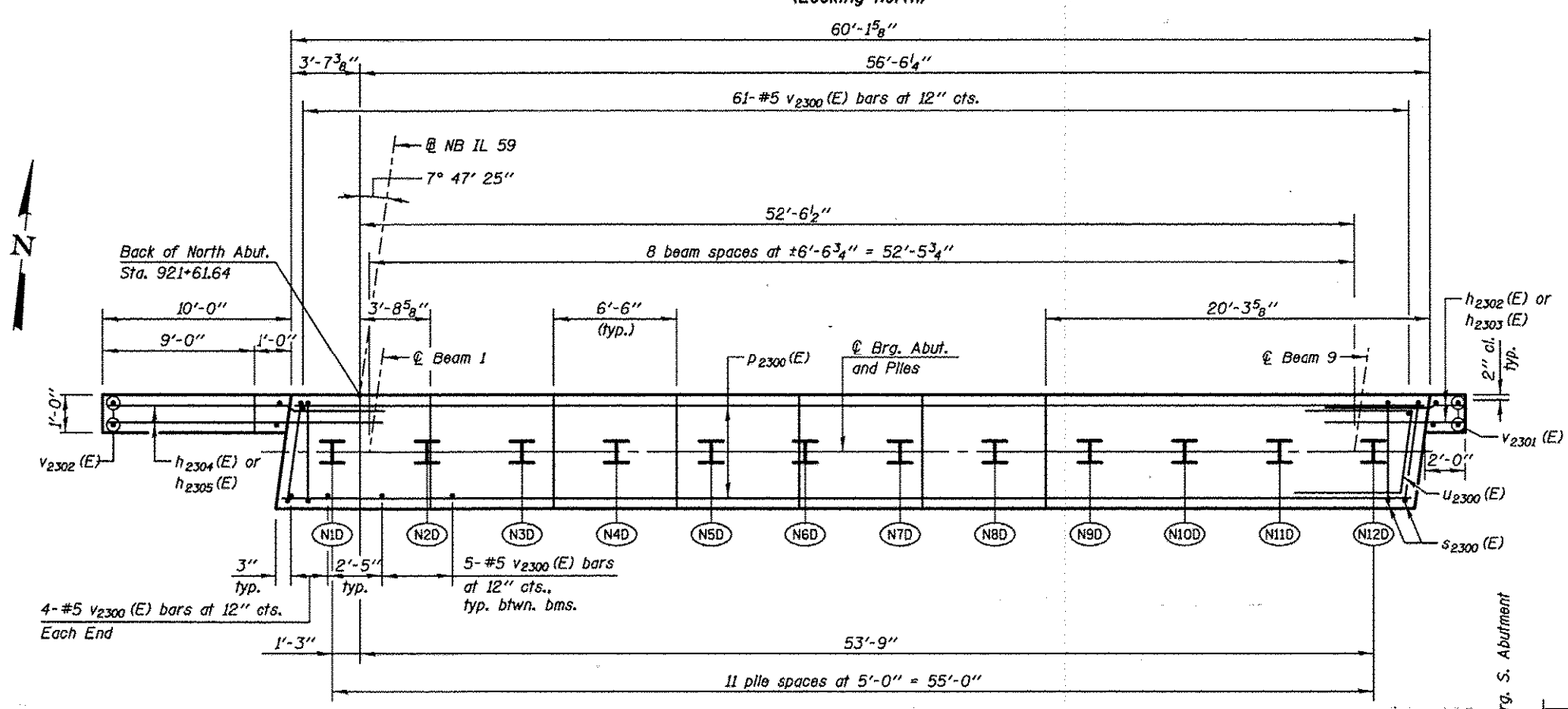
F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
338	(112 & 113) WRS-5	DUPAGE	963	630
		CONTRACT NO. 60131		
		ILLINOIS FED. AID PROJECT		



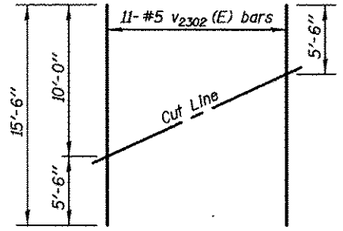
ELEVATION
(Looking North)



SEC. THRU ABUT.



PLAN - NORTH ABUTMENT
(NB Bridge)

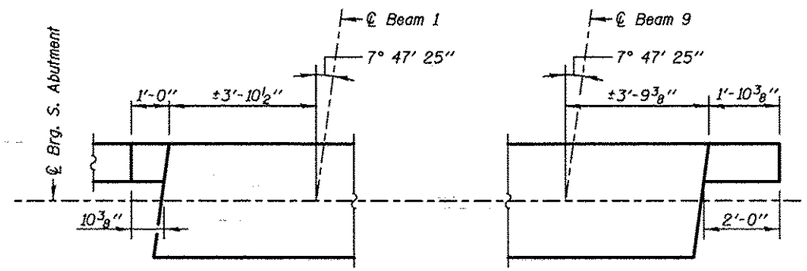


FIELD CUTTING DIAGRAM

Order v_{2302} (E) full length. Cut as shown and use remainder of bars in opposite face.

BEARING SEAT ELEVATIONS

BEAM	BRG. SEAT ELEVATION	STEP T- Inch
1	724.43	
2	724.56	1 1/2"
3	724.69	1 5/8"
4	724.83	1 5/8"
5	724.96	1 5/8"
6	725.10	1 5/8"
7	725.23	1 5/8"
8	725.23	
9	725.23	



ABUTMENT CORNER DETAILS

PILE DATA

Type & Size: Steel HP 14x73
Nominal Required Bearing: 567 Kips
Factored Resistance Available: 312 Kips
Est. Length: 65 ft
No. Production Piles: 11
No. Test Piles: 1

NOTES

Pour steps monolithically with cap.

Bars indicated thus 20x3-#15 indicates 20 lines of bars with 3 lengths per line.

See Sheet SA-04 for additional Pile Layout details.

See Sheet SA-48 for details and Bill of Material.

See Sheet SA-50 for Chain Link Fence post spacing.

See Roadway Plans for additional Chain Link Fence details.

LEGEND

E.F. Each Face
(N1D) Pile Number

MIN. BAR LAP

Vertical Bars	Horizontal Bars
#5 - 2'-7"	#5 - 2'-11"
	#7 - 4'-8"

KNIGHT Engineers & Architects		DESIGNED - WPM	REVISED	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION
		CHECKED - TB	REVISED	
	SCALE - NONE	DRAWN - TB	REVISED	
	DATE - 10/15/2012	CHECKED - WPM	REVISED	

NORTH ABUTMENT (NB)
S.N. 022-2029 (SB) TOLLWAY B.N. 826
S.N. 022-2030 (NB) TOLLWAY B.N. 825
SHEET NO. SA-47 OF 63 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
338	(112 & 113) WRS-5	DUPAGE	963	631
		CONTRACT NO. 60131		
	ILLINOIS FED. AID PROJECT			

SOUTHBOUND BRIDGE

SOUTH ABUTMENT BILL OF MATERIAL

BAR	NO.	SIZE	LENGTH	SHAPE
d1100(E)	2	#4	2'-2"	
h1100(E)	4	#5	22'-6"	
h1101(E)	4	#5	13'-6"	
h1102(E)	12	#7	6'-8"	
h1103(E)	20	#6	5'-6"	
h1104(E)	12	#7	14'-8"	
h1105(E)	18	#6	14'-6"	
p1100(E)	24	#7	29'-6"	
s1100(E)	74	#4	12'-5"	
u1100(E)	8	#6	10'-1"	
u1101(E)	35	#5	8'-8"	
v1100(E)	98	#5	5'-2"	
v1101(E)	6	#5	11'-7"	
v1102(E)	11	#5	15'-6"	
Reinforcement Bars, Epoxy Coated		LB	4510	
Concrete Structures		Cu. Yd.	30.0	
Structure Excavation		Cu. Yd.	270.0	
Furnishing Steel Piles HP 14x73		Foot	770.0	
Driving Piles		Foot	750.0	
Test Pile Steel HP 14x73		Each	1	
Concrete Encasement		Cu. Yd.	7.0	

NORTH ABUTMENT BILL OF MATERIAL

BAR	NO.	SIZE	LENGTH	SHAPE
d1300(E)	2	#4	2'-2"	
h1300(E)	4	#5	22'-6"	
h1301(E)	4	#5	13'-6"	
h1302(E)	12	#7	6'-8"	
h1303(E)	20	#6	5'-6"	
h1304(E)	12	#7	14'-8"	
h1305(E)	18	#6	14'-6"	
p1300(E)	24	#7	29'-6"	
s1300(E)	74	#4	12'-5"	
u1300(E)	8	#6	10'-1"	
u1301(E)	35	#5	8'-8"	
v1300(E)	98	#5	5'-2"	
v1301(E)	6	#5	11'-9"	
v1302(E)	11	#5	15'-6"	
Reinforcement Bars, Epoxy Coated		LB	4520	
Concrete Structures		Cu. Yd.	30.0	
Structure Excavation		Cu. Yd.	272.0	
Furnishing Steel Piles HP 14x73		Foot	670.0	
Driving Piles		Foot	650.0	
Test Pile Steel HP 14x73		Each	1	
Concrete Encasement		Cu. Yd.	7.0	

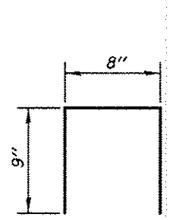
NORTHBOUND BRIDGE

SOUTH ABUTMENT BILL OF MATERIAL

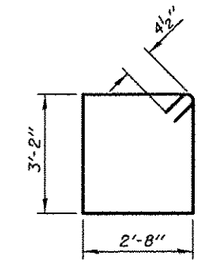
BAR	NO.	SIZE	LENGTH	SHAPE
d2100(E)	2	#4	2'-2"	
h2100(E)	4	#5	22'-6"	
h2101(E)	4	#5	19'-6"	
h2102(E)	12	#7	6'-8"	
h2103(E)	20	#6	5'-6"	
h2104(E)	12	#7	14'-8"	
h2105(E)	18	#6	14'-6"	
p2100(E)	24	#7	32'-6"	
s2100(E)	81	#4	12'-5"	
u2100(E)	8	#6	10'-1"	
u2101(E)	41	#5	8'-8"	
v2100(E)	109	#5	5'-2"	
v2101(E)	6	#5	11'-11"	
v2102(E)	11	#5	15'-6"	
Reinforcement Bars, Epoxy Coated		LB	4860	
Concrete Structures		Cu. Yd.	33.0	
Structure Excavation		Cu. Yd.	315.0	
Furnishing Steel Piles HP 14x73		Foot	682.0	
Driving Piles		Foot	660.0	
Test Pile Steel HP 14x73		Each	1	
Concrete Encasement		Cu. Yd.	7.0	

NORTH ABUTMENT BILL OF MATERIAL

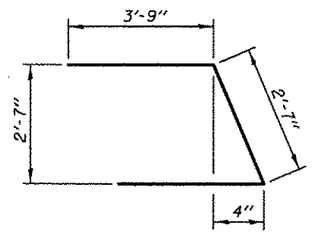
BAR	NO.	SIZE	LENGTH	SHAPE
d2300(E)	2	#4	2'-2"	
h2300(E)	4	#5	22'-6"	
h2301(E)	4	#5	19'-6"	
h2302(E)	12	#7	6'-8"	
h2303(E)	20	#6	5'-6"	
h2304(E)	12	#7	14'-8"	
h2305(E)	18	#6	14'-6"	
p2300(E)	24	#7	32'-6"	
s2300(E)	81	#4	12'-5"	
u2300(E)	8	#6	10'-1"	
u2301(E)	41	#5	8'-8"	
v2300(E)	109	#5	5'-2"	
v2301(E)	6	#5	11'-11"	
v2302(E)	11	#5	15'-6"	
Reinforcement Bars, Epoxy Coated		LB	4860	
Concrete Structures		Cu. Yd.	33.0	
Structure Excavation		Cu. Yd.	303.0	
Furnishing Steel Piles HP 14x73		Foot	737.0	
Driving Piles		Foot	715.0	
Test Pile Steel HP 14x73		Each	1	
Concrete Encasement		Cu. Yd.	7.0	



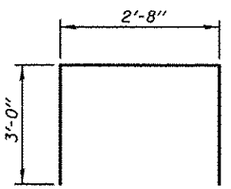
BARS $d_{1100}(E)$ & $d_{1300}(E)$
BARS $d_{2100}(E)$ & $d_{2300}(E)$



BARS $s_{1100}(E)$ & $s_{1300}(E)$
BARS $s_{2100}(E)$ & $s_{2300}(E)$



BARS $u_{1100}(E)$ & $u_{1300}(E)$
BARS $u_{2100}(E)$ & $u_{2300}(E)$



BARS $u_{1101}(E)$ & $u_{1301}(E)$
BARS $u_{2101}(E)$ & $u_{2301}(E)$

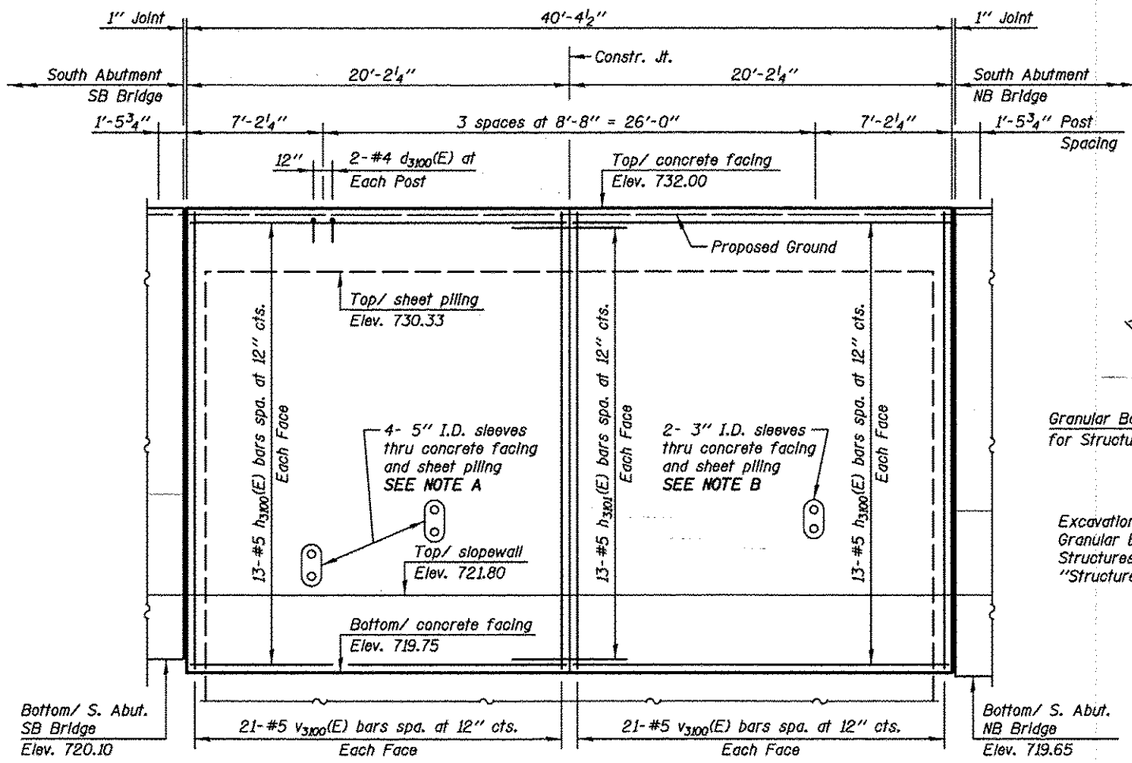
KNIGHT
Engineers & Architects

		DESIGNED - WPM	REVISED
		CHECKED - TB	REVISED
SCALE - NONE		DRAWN - TB	REVISED
DATE - 10/15/2012		CHECKED - WPM	REVISED

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

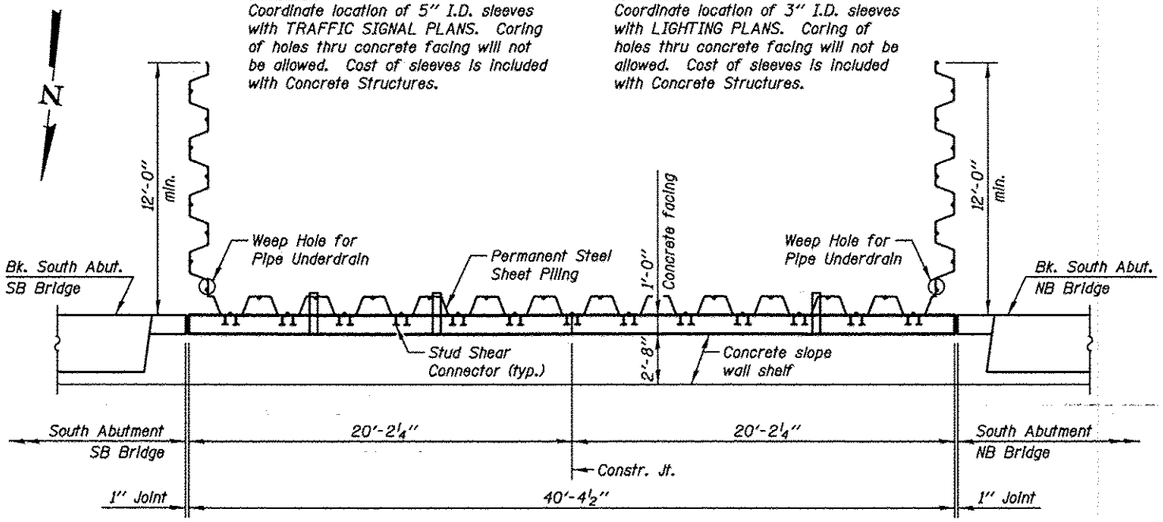
ABUTMENT MISCELLANEOUS DETAILS
S.N. 022-2029 (SB) TOLLWAY B.N. 826
S.N. 022-2030 (NB) TOLLWAY B.N. 825
SHEET NO. SA-48 OF 63 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
338	(112 & 113) WRS-5	DUPAGE	963	632
		CONTRACT NO. 60131		
	ILLINOIS FED. AID PROJECT			



ELEVATION - NORTH FACE

(Looking South)

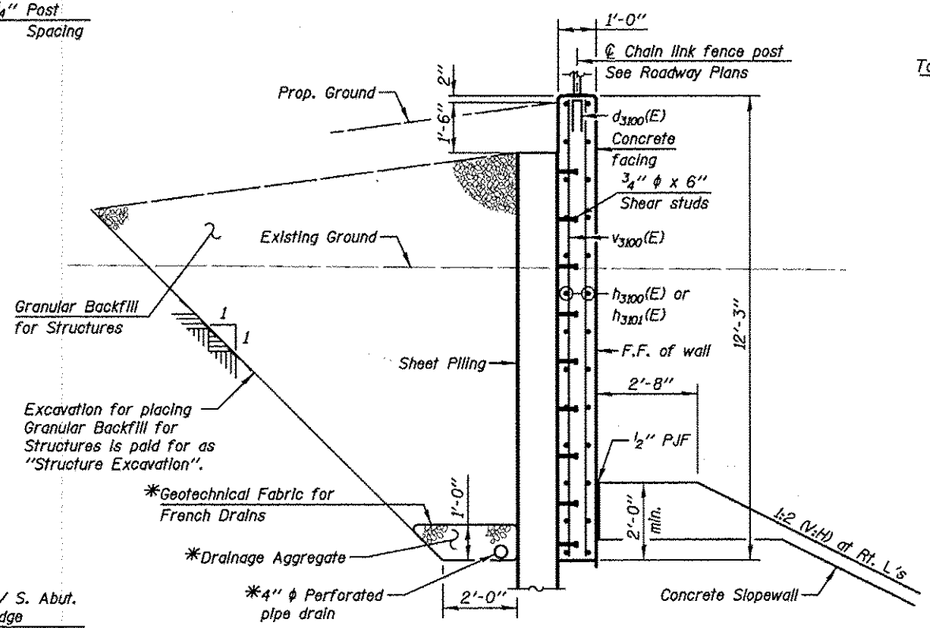


PLAN

DESIGN CRITERIA

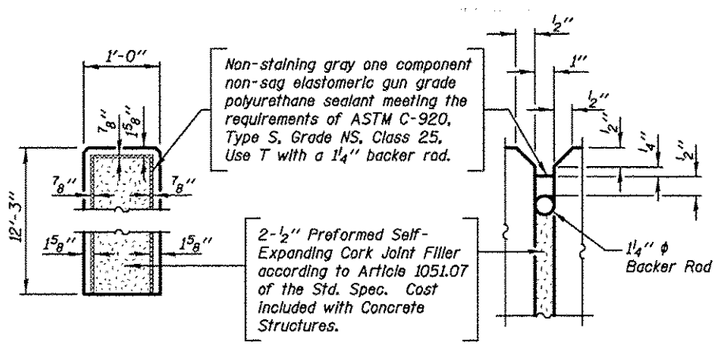
Required Section Modulus = 28.6 in^3/ft

Minimum Tip Elevation = 697.00

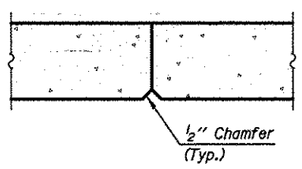


SECTION THRU SHEET PILING WALL

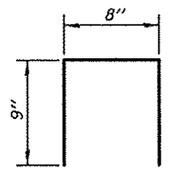
*Included in the cost of Pipe Underdrains for Structures.



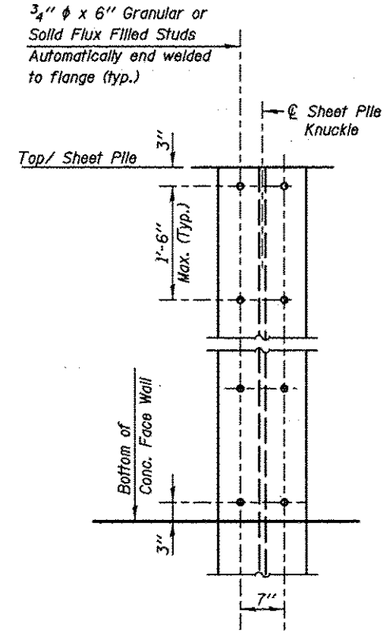
1" JOINT DETAILS



CONSTRUCTION JOINT DETAIL



BAR $d_{3100}(E)$



STUD SHEAR CONNECTORS LAYOUT

BILL OF MATERIAL

BAR	NO.	SIZE	LENGTH	SHAPE
d3100(E)	8	#4	2'-2"	⊓
h3100(E)	52	#5	19'-10"	—
h3101(E)	26	#5	6'-0"	—
v3100(E)	84	#5	11'-11"	—
Structure Excavation			Cu. Yd.	97.0
Concrete Structures			Cu. Yd.	20.0
Stud Shear Connectors			Each	234
Reinforcement Bars, Epoxy Coated			Pound	2300
Permanent Steel Sheet Piling			Sq. Ft.	2171.0
Granular Backfill for Structures			Cu. Yd.	115.0
Pipe Underdrains for Structures 4"			Foot	40.0

NOTES

See Sheet SA-44, SA-46 and SA-48 for South Abutment Details.

MIN. BAR LAP

#5 - 2'-5"

TOLLWAY WALL EW123.3R,EB

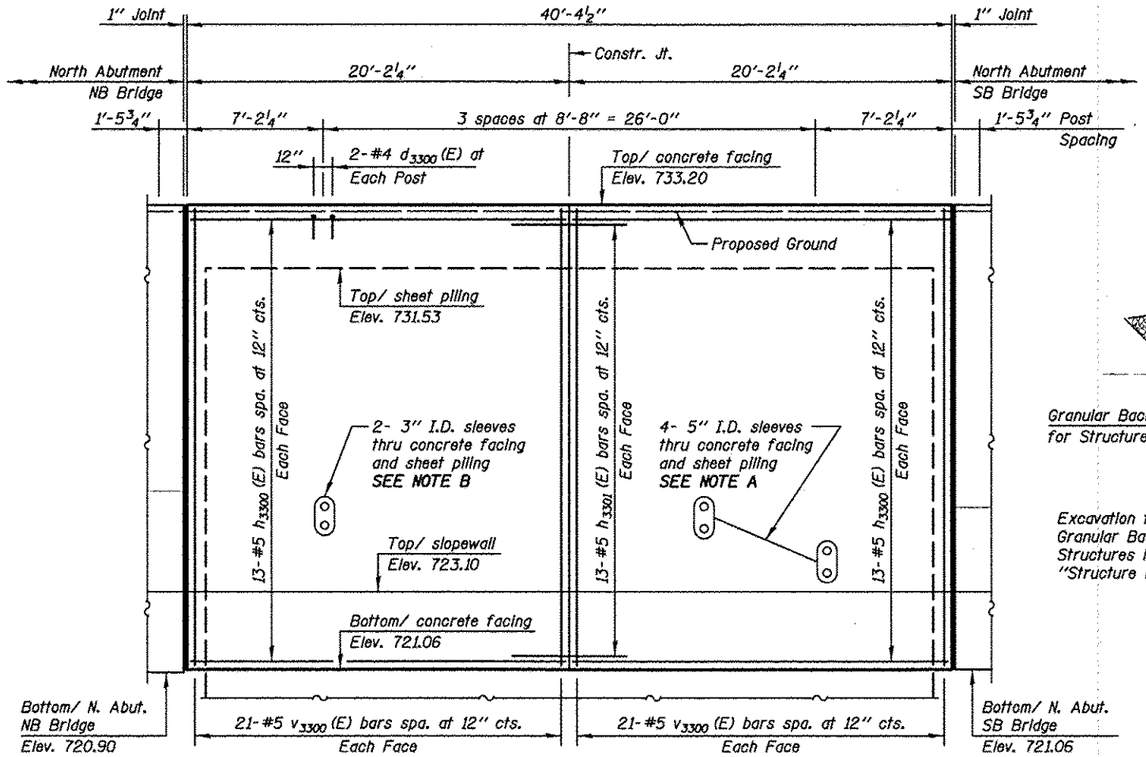
KNIGHT Engineers & Architects

		DESIGNED - WPM	REVISED
		CHECKED - TB	REVISED
SCALE - NONE		DRAWN - TB	REVISED
DATE - 10/15/2012		CHECKED - WPM	REVISED

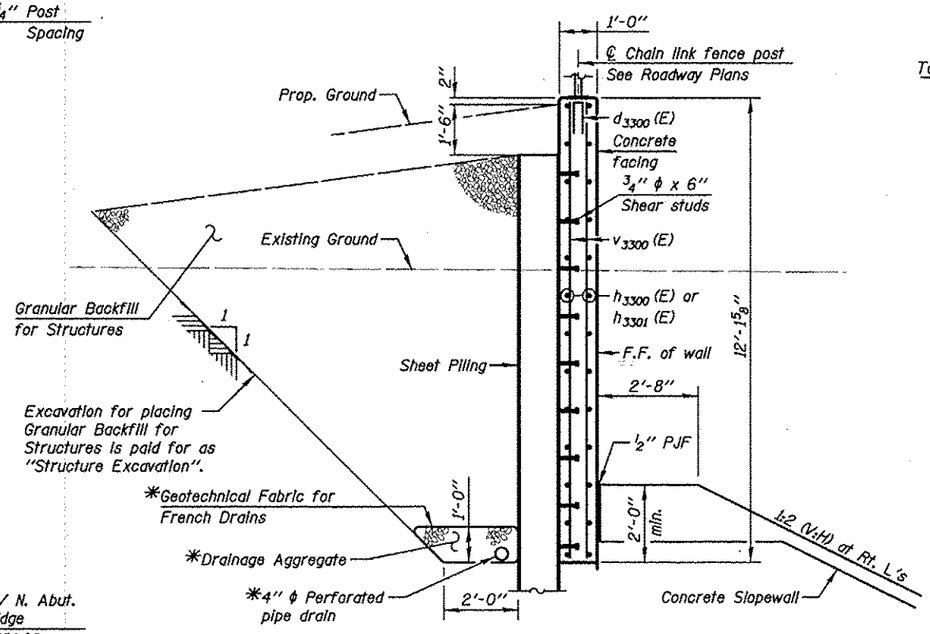
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

RETAINING WALL - SOUTH ABUTMENT
S.N. 022-2029 (SB) TOLLWAY B.N. 826
S.N. 022-2030 (NB) TOLLWAY B.N. 825
SHEET NO. SA-49 OF 63 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
338	(112 & 113) WRS-5	DUPAGE	963	633
		CONTRACT NO. 60I31		
	ILLINOIS FED. AID PROJECT			



ELEVATION - SOUTH FACE

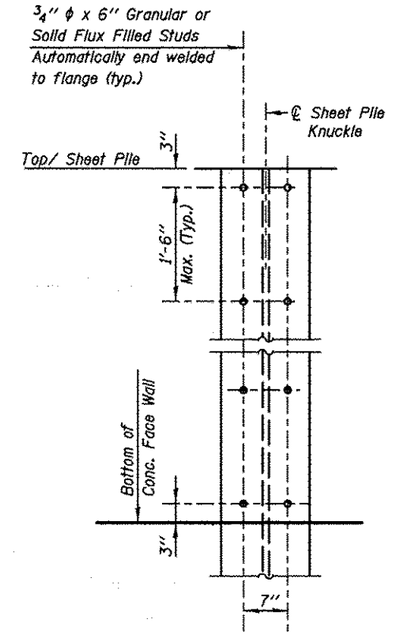


DESIGN CRITERIA

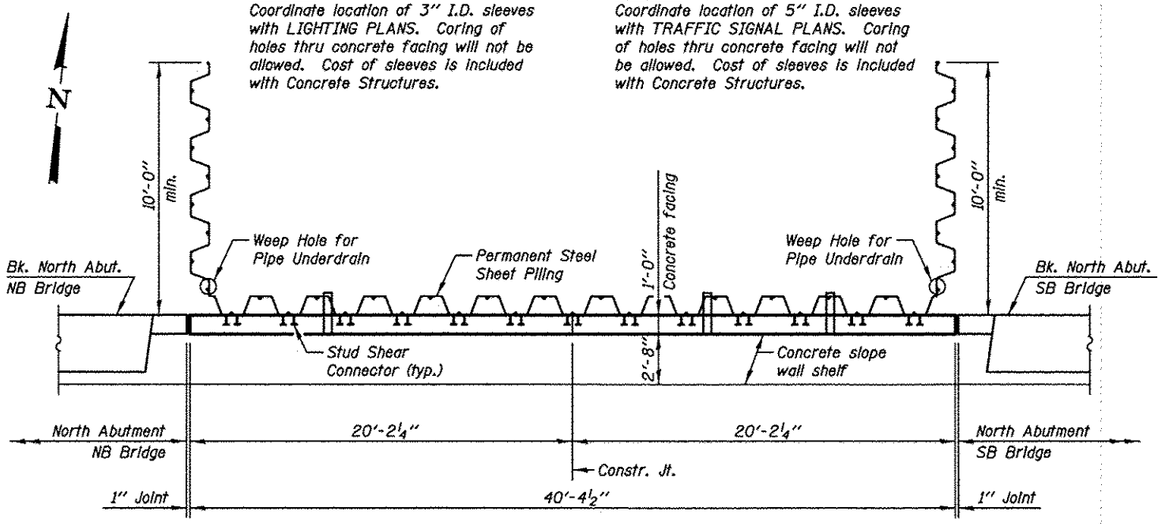
Required Section Modulus = 28.6 in^3/ft
Minimum Tip Elevation = 698.00

SECTION THRU SHEET PILING WALL

*Included in the cost of Pipe Underdrains for Structures.



STUD SHEAR CONNECTORS LAYOUT



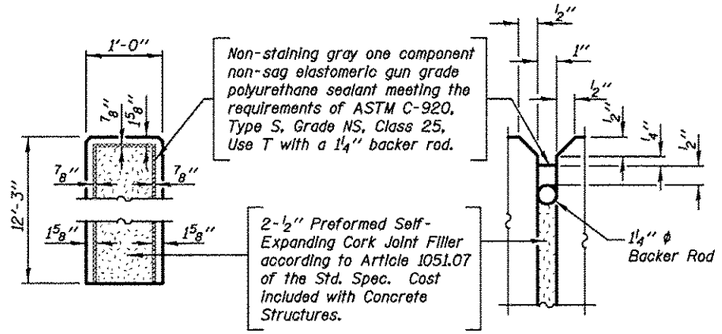
PLAN

NOTE B

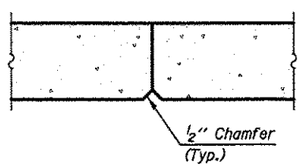
Coordinate location of 3" I.D. sleeves with LIGHTING PLANS. Coring of holes thru concrete facing will not be allowed. Cost of sleeves is included with Concrete Structures.

NOTE A

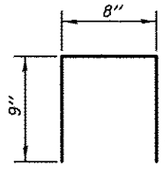
Coordinate location of 5" I.D. sleeves with TRAFFIC SIGNAL PLANS. Coring of holes thru concrete facing will not be allowed. Cost of sleeves is included with Concrete Structures.



1" JOINT DETAILS



CONSTRUCTION JOINT DETAIL



BAR d_{3300} (E)

BILL OF MATERIAL

BAR	NO.	SIZE	LENGTH	SHAPE
d3300(E)	8	#4	2'-2"	⊓
h3300(E)	52	#5	19'-10"	—
h3301(E)	26	#5	6'-0"	—
v3300(E)	84	#5	11'-9"	—
Structure Excavation			Cu. Yd.	91.0
Concrete Structures			Cu. Yd.	20.0
Stud Shear Connectors			Each	234
Reinforcement Bars, Epoxy Coated			Pound	2280
Permanent Steel Sheet Piling			Sq. Ft.	2183.0
Granular Backfill for Structures			Cu. Yd.	112.0
Pipe Underdrains for Structures 4"			Foot	40.0

NOTES

See Sheet SA-45, SA-47 and SA-48 for North Abutment Details.

MIN. BAR LAP

#5 - 2'-5"

TOLLWAY WALL EW123.3R,WB

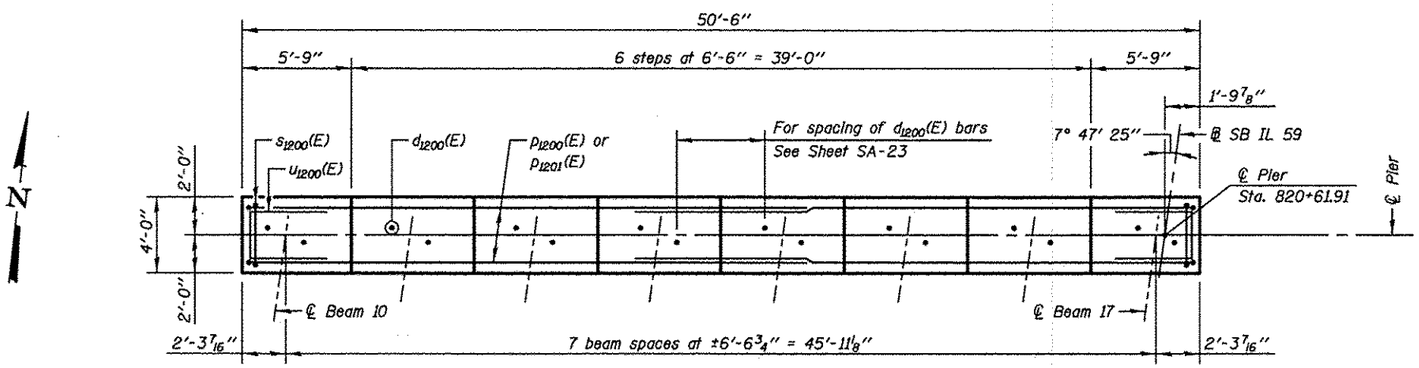
KNIGHT
Engineers & Architects

		DESIGNED - WPM	REVISED
		CHECKED - TB	REVISED
SCALE - NONE		DRAWN - TB	REVISED
DATE - 10/15/2012		CHECKED - WPM	REVISED

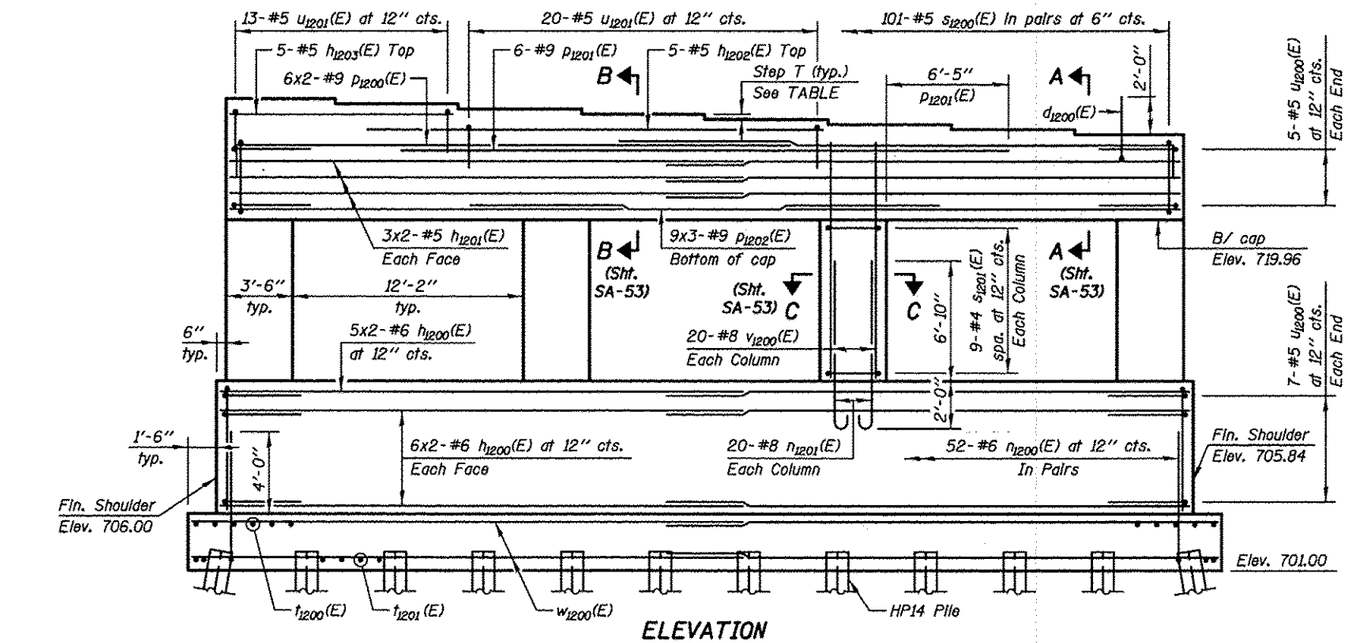
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

RETAINING WALL - NORTH ABUTMENT
S.N. 022-2029 (SB) TOLLWAY B.N. 826
S.N. 022-2030 (NB) TOLLWAY B.N. 825
SHEET NO. SA-50 OF 63 SHEETS

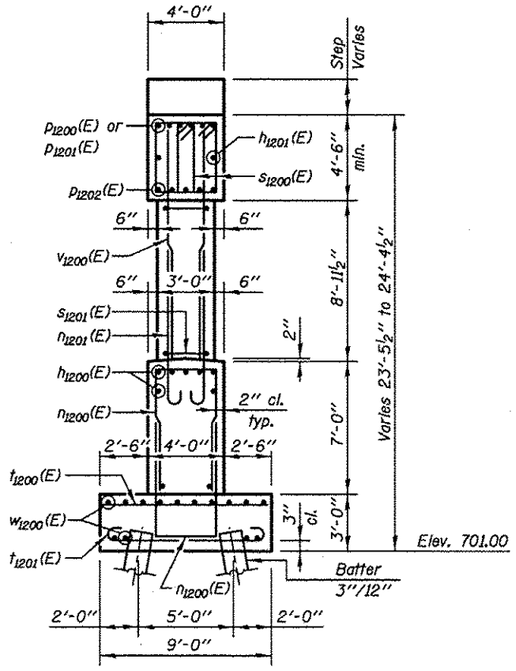
F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
338	(112 & 113) WRS-5	DUPAGE	963	634
		CONTRACT NO. 60131		
	ILLINOIS FED. AID PROJECT			



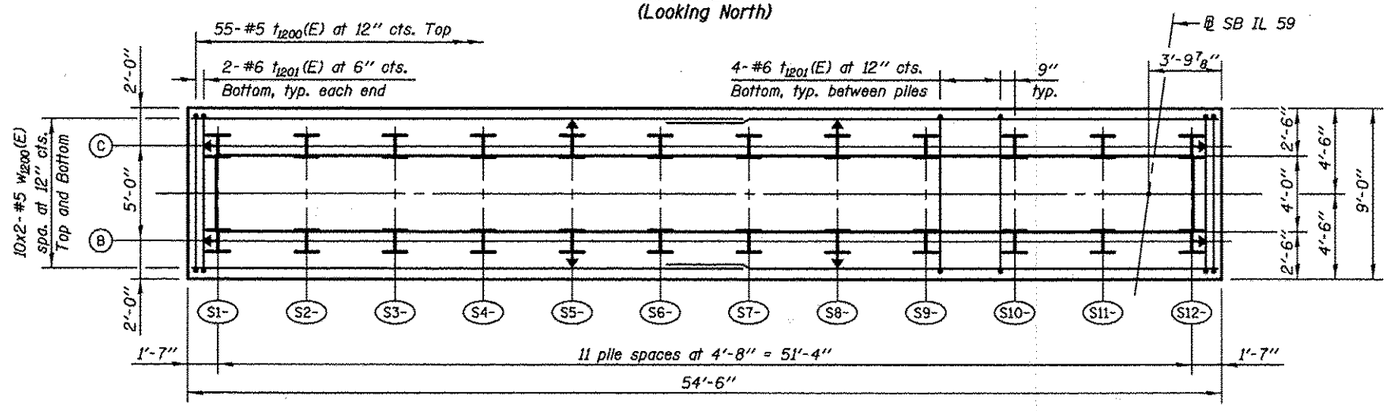
TOP PLAN



ELEVATION
(Looking North)



END VIEW



FOOTING PLAN

BEARING SEAT ELEVATIONS

BEAM	BRG. SEAT ELEVATION	STEP T- Inch
10	725.38	
11	725.24	1 5/8"
12	725.11	1 5/8"
13	724.97	1 5/8"
14	724.85	1 1/2"
15	724.71	1 5/8"
16	724.59	1 1/2"
17	724.46	1 1/2"

LEGEND

E.F. Each Face
(S1B) Pile Number
Vertical Pile
Battered Pile

PILE DATA

Type & Size: Steel HP 14x73
Nominal Required Bearing: 509 Kips
Factored Resistance Available: 280 Kips
Est. Length: 51 ft
No. Production Piles: 23
No. Test Piles: 1

NOTES

Pour steps monolithically with cap.

Bars indicated thus 20x3-#15 indicates 20 lines of bars with 3 lengths per line.

See Sheet SA-04 for additional Pile Layout details.

See Sheet SA-53 for Section A-A, B-B & C-C, details and Bill of Material.

MIN. BAR LAP

Vertical Bars	Horizontal Bars
#5 - 2'-7"	#5 - 2'-11"
	#7 - 4'-8"

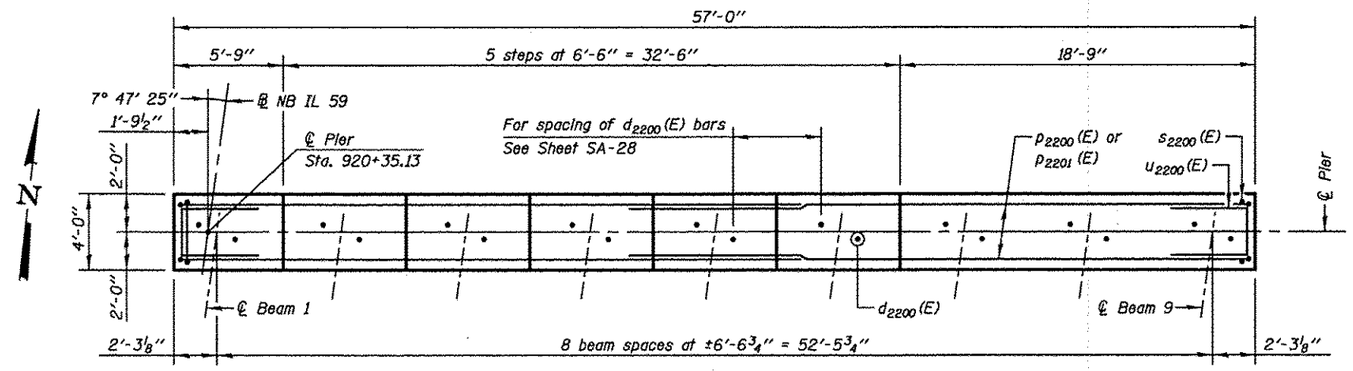
KNIGHT
Engineers & Architects

		DESIGNED - WPM	REVISED
		CHECKED - TB	REVISED
SCALE - NONE		DRAWN - TB	REVISED
DATE - 10/15/2012		CHECKED - WPM	REVISED

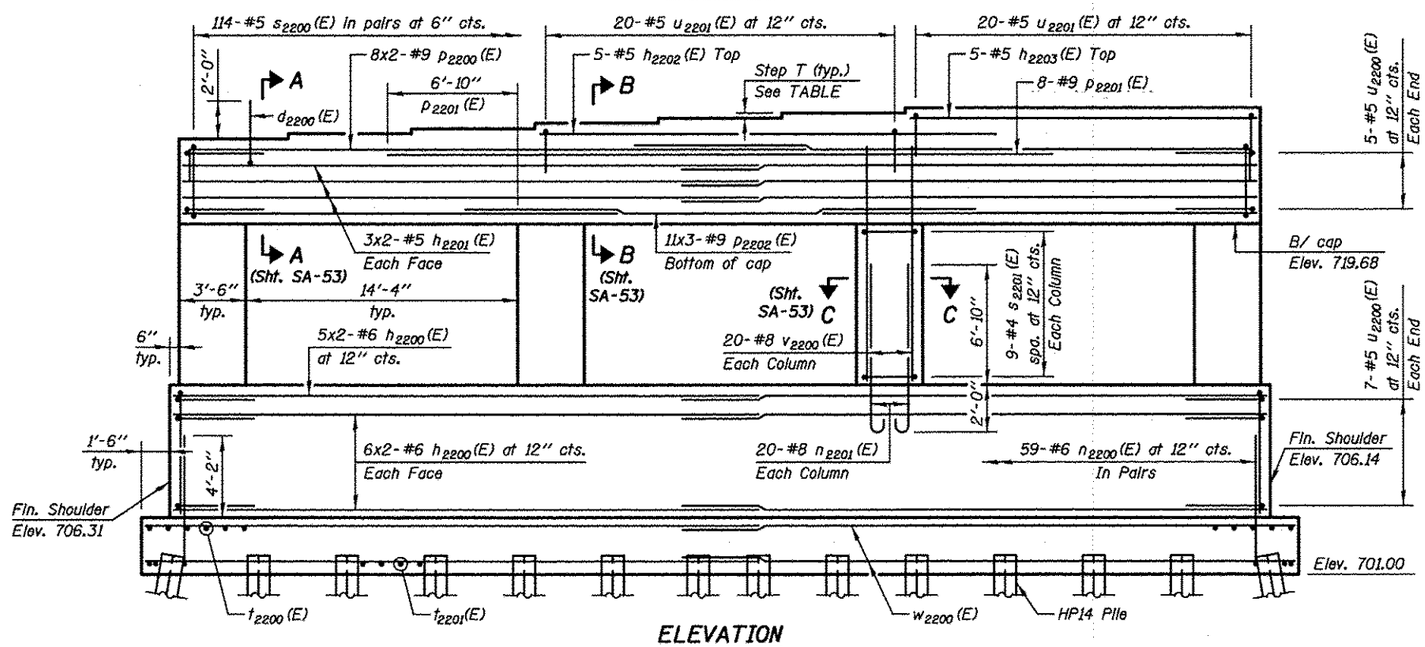
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

PIER (SB)
S.N. 022-2029 (SB) TOLLWAY B.N. 826
S.N. 022-2030 (NB) TOLLWAY B.N. 825
SHEET NO. SA-51 OF 63 SHEETS

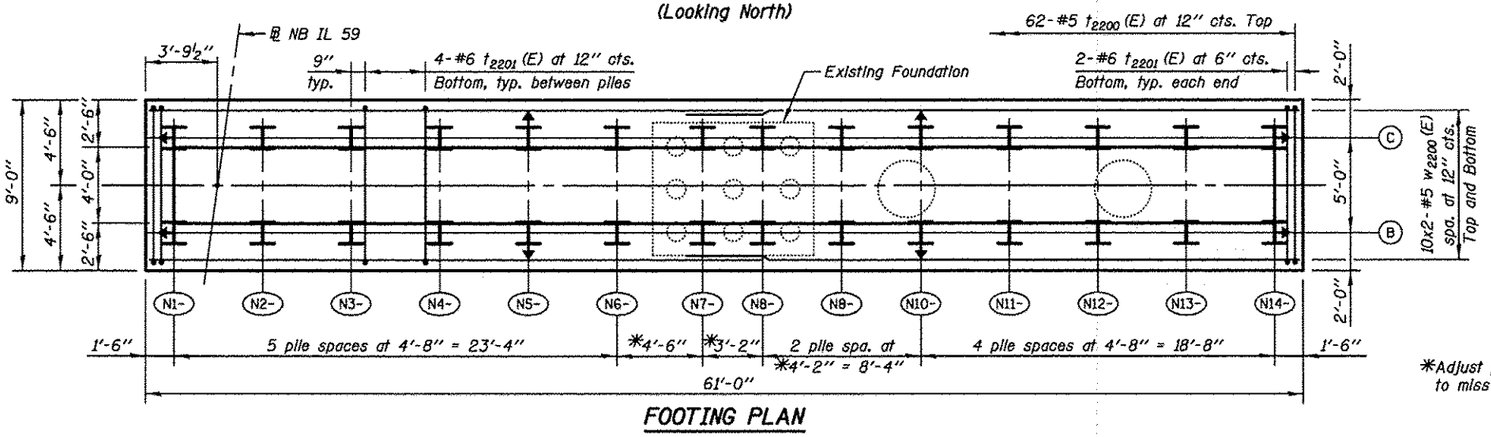
F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
338	(112 & 113) WRS-5	DUPAGE	963	635
		CONTRACT NO. 60I31		
	ILLINOIS FED. AID PROJECT			



TOP PLAN

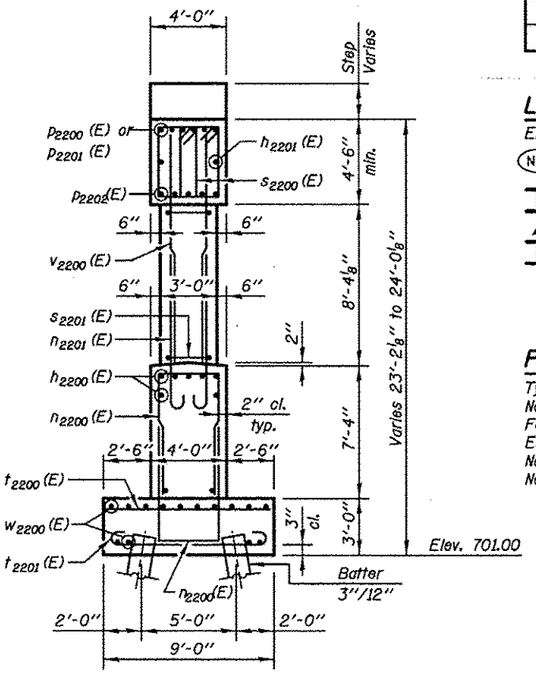


ELEVATION
(Looking North)



FOOTING PLAN

*Adjust pile spacing, as required, to miss existing piles.



END VIEW

BEARING SEAT ELEVATIONS

BEAM	BRG. SEAT ELEVATION	STEP T- Inch
1	724.18	
2	724.32	1⅝"
3	724.45	1⅝"
4	724.59	1⅝"
5	724.73	1¾"
6	724.87	1⅝"
7	725.01	1¾"
8	725.01	
9	725.01	

LEGEND

E.F. Each Face
(N1B) Pile Number
Vertical Pile
Battered Pile

PILE DATA

Type & Size: Steel HP 14x73
Nominal Required Bearing: 504 Kips
Factored Resistance Available: 277 Kips
Est. Length: 58 ft
No. Production Piles: 27
No. Test Piles: 1

NOTES

Pour steps monolithically with cap.

Bars indicated thus 20x3-#15 indicates 20 lines of bars with 3 lengths per line.

See Sheet SA-04 for additional Pile Layout details.

See Sheet SA-53 for Section A-A, B-B & C-C, details and Bill of Material.

MIN. BAR LAP

Vertical Bars	Horizontal Bars
#5 - 2'-7"	#5 - 2'-11"
	#7 - 4'-8"

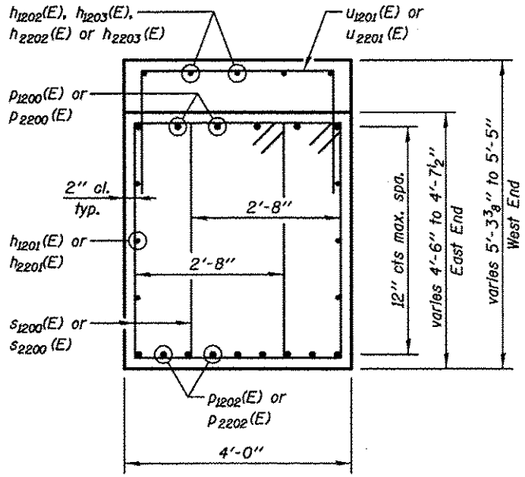
KNIGHT
Engineers & Architects

		DESIGNED - WPM	REVISED
		CHECKED - TB	REVISED
SCALE - NONE		DRAWN - TB	REVISED
DATE - 10/15/2012		CHECKED - WPM	REVISED

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

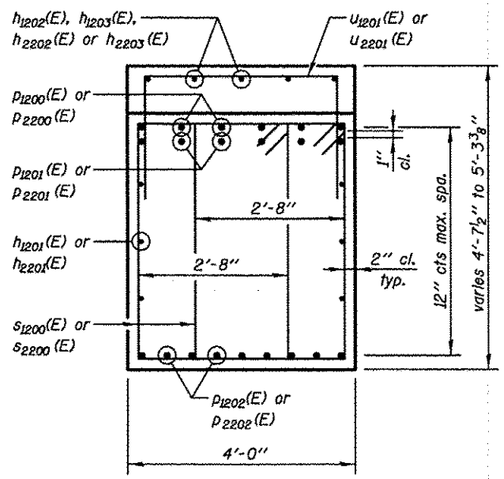
PIER (NB)
S.N. 022-2029 (SB) TOLLWAY B.N. 826
S.N. 022-2030 (NB) TOLLWAY B.N. 825
SHEET NO. SA-52 OF 63 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
338	(112 & 113) WRS-5	DUPAGE	963	636
		CONTRACT NO. 60I31		
	ILLINOIS FED. AID PROJECT			



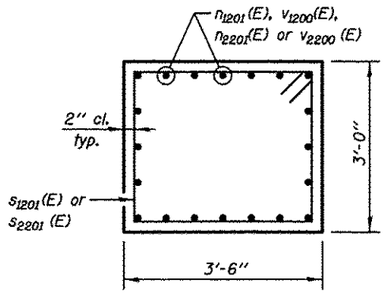
SECTION A-A

SB Bridge shown, NB Bridge similar



SECTION B-B

SB Bridge shown, NB Bridge similar



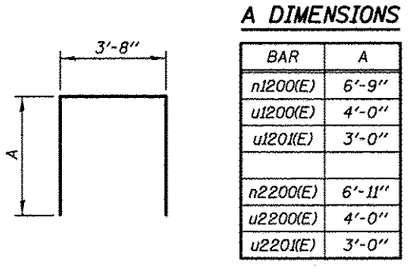
SECTION C-C

SOUTHBOUND BILL OF MATERIAL

BAR	NO.	SIZE	LENGTH	SHAPE
d1200(E)	44	#8	4'-2"	
h1200(E)	34	#6	28'-0"	
h1201(E)	12	#5	27'-5"	
h1202(E)	5	#5	22'-6"	
h1203(E)	5	#5	11'-11"	
n1200(E)	104	#6	17'-2"	
n1201(E)	80	#8	9'-9"	
p1200(E)	12	#9	31'-7"	
p1201(E)	6	#9	32'-0"	
p1202(E)	27	#9	22'-6"	
s1200(E)	202	#5	14'-7"	
s1201(E)	36	#4	12'-5"	
t1200(E)	55	#5	8'-8"	
t1201(E)	48	#6	10'-0"	
u1200(E)	24	#5	11'-8"	
u1201(E)	33	#5	8'-8"	
v1200(E)	80	#8	13'-2"	
w1200(E)	40	#5	29'-0"	
Reinforcement Bars, Epoxy Coated		LB	20420	
Concrete Structures		Cu. Yd.	168.0	
Structure Excavation		Cu. Yd.	148.0	
Furnishing Steel Piles HP 14x73		Foot	1196.0	
Driving Piles		Foot	1173.0	
Test Pile Steel HP 14x73		Each	1	
Concrete Sealer		Sq. Ft.	1985.0	

NORTHBOUND BILL OF MATERIAL

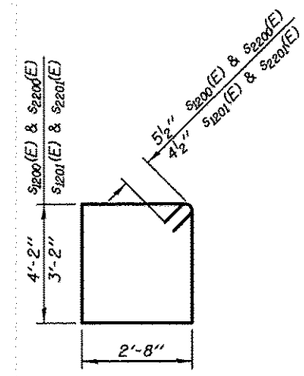
BAR	NO.	SIZE	LENGTH	SHAPE
d2200(E)	50	#8	4'-2"	
h2200(E)	34	#6	31'-3"	
h2201(E)	12	#5	30'-8"	
h2202(E)	5	#5	22'-6"	
h2203(E)	5	#5	18'-5"	
n2200(E)	118	#6	17'-6"	
n2201(E)	80	#8	9'-9"	
p2200(E)	16	#9	34'-10"	
p2201(E)	8	#9	35'-0"	
p2202(E)	33	#9	24'-8"	
s2200(E)	228	#5	14'-7"	
s2201(E)	36	#4	12'-5"	
t2200(E)	62	#5	8'-8"	
t2201(E)	56	#6	10'-0"	
u2200(E)	24	#5	11'-8"	
u2201(E)	40	#5	8'-8"	
v2200(E)	80	#8	12'-7"	
w2200(E)	40	#5	32'-3"	
Reinforcement Bars, Epoxy Coated		LB	23410	
Concrete Structures		Cu. Yd.	189.0	
Structure Excavation		Cu. Yd.	155.0	
Furnishing Steel Piles HP 14x73		Foot	1593.0	
Driving Piles		Foot	1566.0	
Test Pile Steel HP 14x73		Each	1	
Concrete Sealer		Sq. Ft.	2157.0	



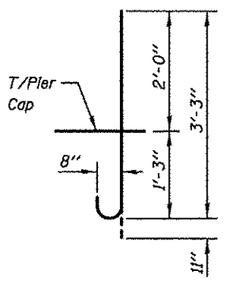
A DIMENSIONS

BAR	A
n1200(E)	6'-9"
u1200(E)	4'-0"
u1201(E)	3'-0"
n2200(E)	6'-11"
u2200(E)	4'-0"
u2201(E)	3'-0"

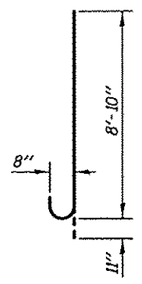
BARS n_{1200}(E), u_{1200}(E) & u_{1201}(E)
BARS n_{2200}(E), u_{2200}(E) & u_{2201}(E)



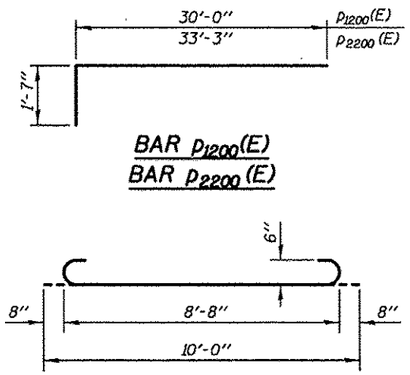
BARS s_{1200}(E) & s_{1201}(E)
BARS s_{2200}(E) & s_{2201}(E)



BAR d_{1200}(E)
BAR d_{2200}(E)



BAR n_{1201}(E)
BAR n_{2201}(E)



BAR p_{1200}(E)
BAR p_{2200}(E)

BAR t_{1201}(E)
BAR t_{2201}(E)

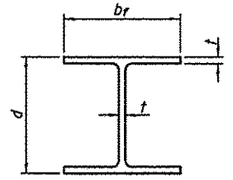
KNIGHT
Engineers & Architects

		DESIGNED - WPM	REVISED
		CHECKED - TB	REVISED
SCALE - NONE		DRAWN - TB	REVISED
DATE - 10/15/2012		CHECKED - WPM	REVISED

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

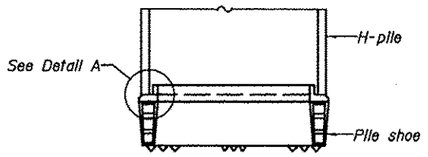
PIER DETAILS
S.N. 022-2029 (SB) TOLLWAY B.N. 826
S.N. 022-2030 (NB) TOLLWAY B.N. 825
SHEET NO. SA-53 OF 63 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
338	(112 & 113) WRS-5	DUPAGE	963	637
		CONTRACT NO. 60131		
		ILLINOIS FED. AID PROJECT		

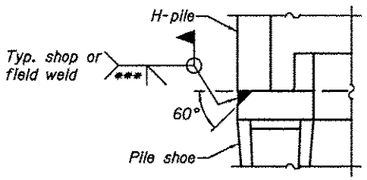


STEEL PILE TABLE

Designation	Depth d	Flange width b_f	Web and Flange thickness t	Encasement diameter A
HP 14x117	$14\frac{1}{4}''$	$14\frac{7}{8}''$	$\frac{13}{16}''$	30″
x102	14″	$14\frac{3}{4}''$	$\frac{11}{16}''$	30″
x89	$13\frac{7}{8}''$	$14\frac{3}{4}''$	$\frac{5}{8}''$	30″
x73	$13\frac{5}{8}''$	$14\frac{5}{8}''$	$\frac{1}{2}''$	30″
HP 12x84	$12\frac{1}{4}''$	$12\frac{1}{4}''$	$\frac{11}{16}''$	24″
x74	$12\frac{1}{8}''$	$12\frac{1}{4}''$	$\frac{5}{8}''$	24″
x63	12″	$12\frac{1}{8}''$	$\frac{1}{2}''$	24″
x53	$11\frac{3}{4}''$	12″	$\frac{7}{16}''$	24″
HP 10x57	10″	$10\frac{1}{4}''$	$\frac{9}{16}''$	24″
x42	$9\frac{3}{4}''$	$10\frac{1}{8}''$	$\frac{7}{16}''$	24″
HP 8x36	8″	$8\frac{1}{8}''$	$\frac{7}{16}''$	18″

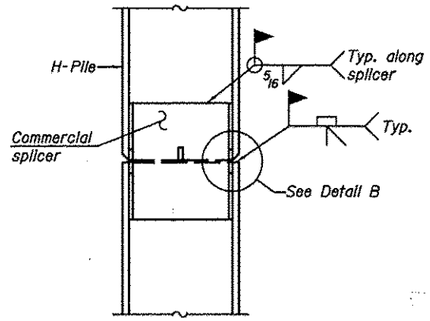


ELEVATION

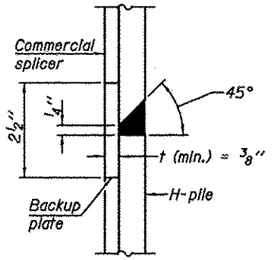


DETAIL A

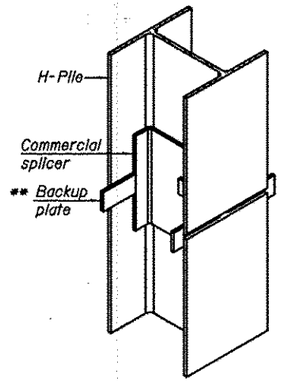
H-PILE SHOE ATTACHMENT



ELEVATION

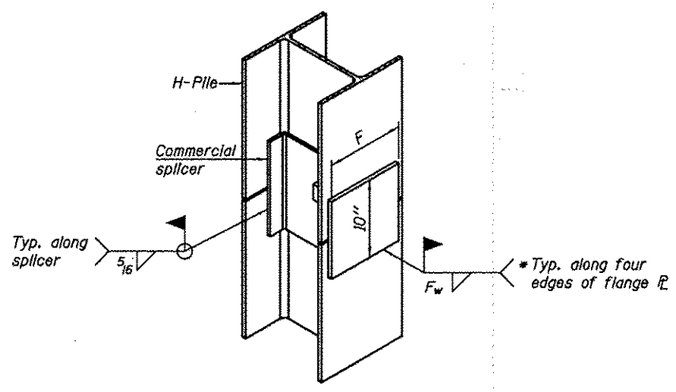


DETAIL "B"



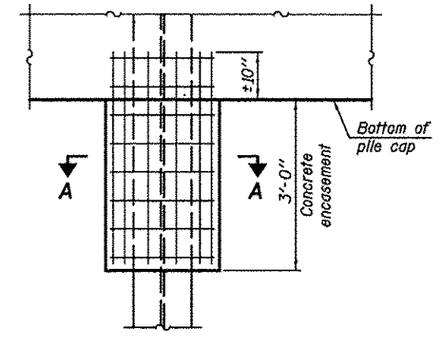
ISOMETRIC VIEW

WELDED COMMERCIAL SPLICE

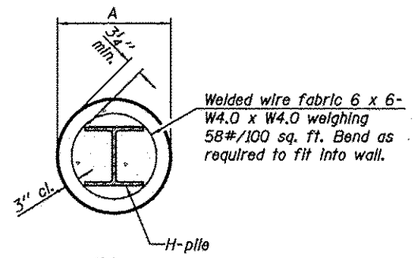


ISOMETRIC VIEW

WELDED COMMERCIAL SPLICE ALTERNATE



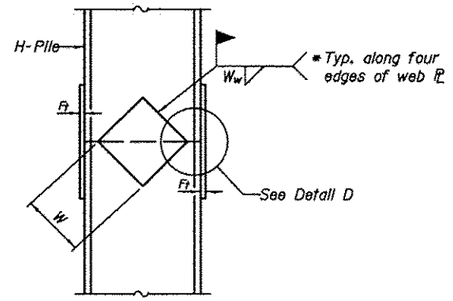
ELEVATION



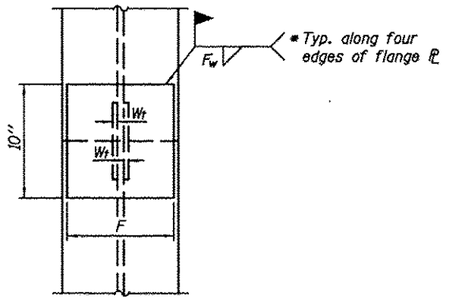
Note:
Forms for encasement may be omitted when soil conditions permit.

SECTION A-A

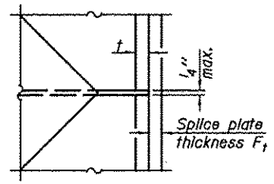
PILE ENCASEMENT



ELEVATION



END VIEW



DETAIL D

Designation	F	F_t	F_w	W	W_t	W_w
HP 14x117	$12\frac{1}{2}''$	1″	$\frac{7}{8}''$	$7\frac{3}{4}''$	$\frac{5}{8}''$	$\frac{1}{2}''$
x102	$12\frac{1}{2}''$	$\frac{7}{8}''$	$\frac{3}{4}''$	$7\frac{3}{4}''$	$\frac{5}{8}''$	$\frac{1}{2}''$
x89	$12\frac{1}{2}''$	$\frac{3}{4}''$	$\frac{11}{16}''$	$7\frac{3}{4}''$	$\frac{5}{8}''$	$\frac{1}{2}''$
x73	$12\frac{1}{2}''$	$\frac{5}{8}''$	$\frac{9}{16}''$	$7\frac{3}{4}''$	$\frac{5}{8}''$	$\frac{1}{2}''$
HP 12x84	10″	$\frac{7}{8}''$	$\frac{11}{16}''$	$6\frac{1}{2}''$	$\frac{5}{8}''$	$\frac{1}{2}''$
x74	10″	$\frac{7}{8}''$	$\frac{11}{16}''$	$6\frac{1}{2}''$	$\frac{5}{8}''$	$\frac{1}{2}''$
x63	10″	$\frac{5}{8}''$	$\frac{1}{2}''$	$6\frac{1}{2}''$	$\frac{1}{2}''$	$\frac{3}{8}''$
x53	10″	$\frac{5}{8}''$	$\frac{1}{2}''$	$6\frac{1}{2}''$	$\frac{1}{2}''$	$\frac{3}{8}''$
HP 10x57	8″	$\frac{3}{4}''$	$\frac{9}{16}''$	$5\frac{1}{4}''$	$\frac{1}{2}''$	$\frac{3}{8}''$
x42	8″	$\frac{5}{8}''$	$\frac{9}{16}''$	$5\frac{1}{4}''$	$\frac{1}{2}''$	$\frac{3}{8}''$
HP 8x36	7″	$\frac{5}{8}''$	$\frac{7}{16}''$	$4\frac{1}{4}''$	$\frac{1}{2}''$	$\frac{3}{8}''$

WELDED PLATE FIELD SPLICE

* Interrupt welds $\frac{1}{4}''$ from end of web and/or each flange.

** Remove portions of backup plates that extend outside the flanges.

*** Weld size per pile shoe manufacturer ($\frac{5}{16}''$ min.).

Note:
The steel H-piles shall be according to AASHTO M270 Grade 50.

F-HP 1-27-12

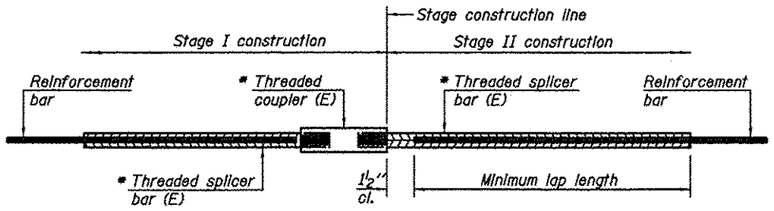
KNIGHT Engineers & Architects

		DESIGNED - WPM	REVISED
		CHECKED - TB	REVISED
SCALE - NONE		DRAWN - TB	REVISED
DATE - 10/15/2012		CHECKED - WPM	REVISED

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

HP PILE DETAILS
S.N. 022-2029 (SB) TOLLWAY B.N. 826
S.N. 022-2030 (NB) TOLLWAY B.N. 825
SHEET NO. SA-54 OF 63 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
338	(112 & 113) WRS-5	DUPAGE	963	638
		CONTRACT NO. 60131		
		ILLINOIS FED. AID PROJECT		



STANDARD BAR SPLICER ASSEMBLY

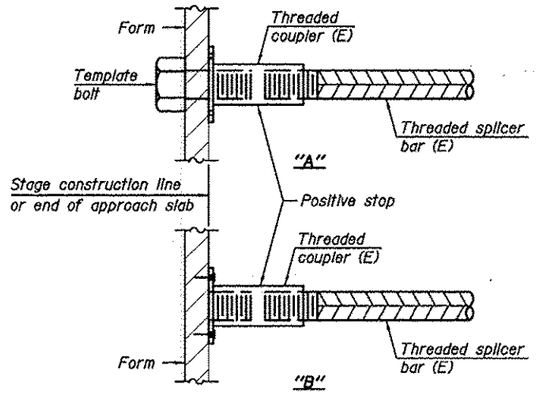
Minimum Lap Lengths						
Bar size to be spliced	Table 1	Table 2	Table 3	Table 4	Table 5	Table 6
3, 4	1'-5"	1'-11"	2'-1"	2'-4"	2'-7"	2'-11"
5	1'-9"	2'-5"	2'-7"	2'-11"	3'-3"	3'-8"
6	2'-1"	2'-11"	3'-1"	3'-6"	3'-10"	4'-5"
7	2'-9"	3'-10"	4'-2"	4'-8"	5'-2"	5'-10"
8	3'-8"	5'-1"	5'-5"	6'-2"	6'-9"	7'-8"
9	4'-7"	6'-5"	6'-10"	7'-9"	8'-7"	9'-8"

Table 1: Black bar, 0.8 Class C
Table 2: Black bar, Top bar lap, 0.8 Class C
Table 3: Epoxy bar, 0.8 Class C
Table 4: Epoxy bar, Top bar lap, 0.8 Class C
Table 5: Epoxy bar, Class C
Table 6: Epoxy bar, Top bar top, Class C

Threaded splicer bar length = min. lap length + 1½" + thread length

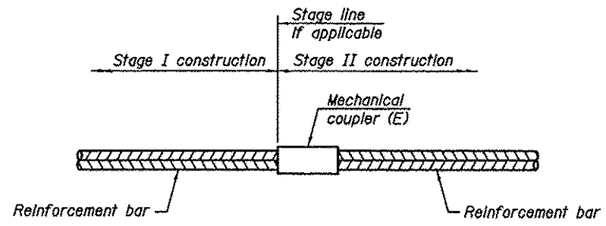
* Epoxy not required on Bar Splicer Assembly components used in conjunction with black bars.

Location	Bar size	No. assemblies required	Table for minimum lap length



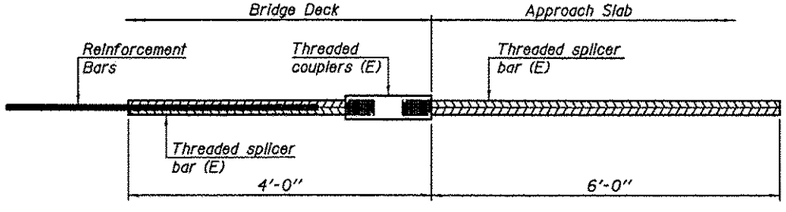
INSTALLATION AND SETTING METHODS

"A" : Set bar splicer assembly by means of a template bolt.
"B" : Set bar splicer assembly by nailing to wood forms or cementing to steel forms.
(E) : Indicates epoxy coating.



STANDARD MECHANICAL SPLICER

Location	Bar size	No. assemblies required



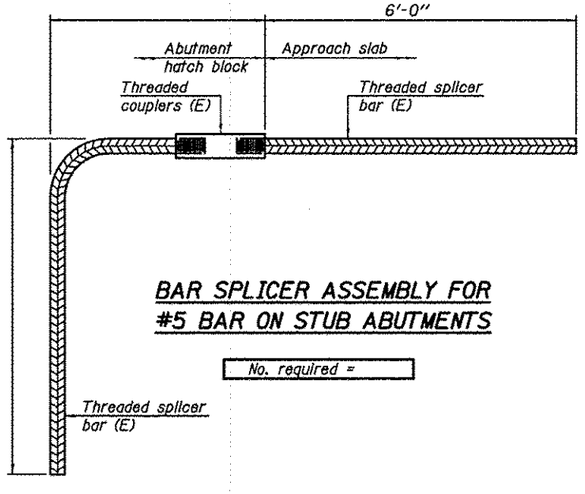
BAR SPLICER ASSEMBLY FOR #5 BAR ON INTEGRAL OR SEMI-INTEGRAL ABUTMENTS

SB BRIDGE

No. required	Location
56	South Abutment
56	North Abutment

NB BRIDGE

No. required	Location
62	South Abutment
62	North Abutment



BAR SPLICER ASSEMBLY FOR #5 BAR ON STUB ABUTMENTS

No. required =

NOTES

Splicer bars shall be deformed with threaded ends and have a minimum 60 ksi yield strength.

All reinforcement shall be lapped and tied to the splicer bars.

Bar splicer assemblies shall be epoxy coated according to the requirements for reinforcement bars. See Section 508 of the Standard Specifications.

See approved list of bar splicer assemblies and mechanical splicers for alternatives.

BSD-1 1-27-12

KNIGHT Engineers & Architects

SCALE - NONE
DATE - 10/15/2012

DESIGNED - WPM		REVISED
CHECKED - TB		REVISED
DRAWN - TB		REVISED
CHECKED - WPM		REVISED

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

BAR SPLICER ASSEMBLY DETAILS
S.N. 022-2029 (SB) TOLLWAY B.N. 826
S.N. 022-2030 (NB) TOLLWAY B.N. 825
SHEET NO. SA-55 OF 63 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
338	(112 & 113) WRS-5	DUPAGE	963	639
		CONTRACT NO. 60131		
	ILLINOIS FED. AID PROJECT			

SOIL BORING LOG

Geo Services, Inc.
Geotechnical, Environmental & Civil Engineering
805 Amherst Court, Suite 204
Naperville, Illinois 60565
(630) 355-2838

DATE 12/21-22/2011
LOGGED BY RJ
GSI JOB No. 09173

ROUTE IL Route 59 (FAP 338) DESCRIPTION Illinois Route 59-Aurora Avenue/New York Street To Ferry Road
SECTION (112 & 113) WRS-5 LOCATION SEC. 3, 9-10, 15-16, 21-22 TWP. 38N, RNG. 9E, Naperville Township
COUNTY DuPage DRILLING METHOD Hollow Stem Auger/Rotary HAMMER TYPE CME Automatic

STRUCT. No. 022-2030 NB, 022-2029 SB
Station: 4058+30.47 IL Rte. 59
BORING NO. **BS-01**
Station: 4056+62 IL Rte. 59
Offset: 26.5' Left
Ground Surface Elev. 726.8

Surface Water Elev. n/a
Stream Bed Elev. n/a
Groundwater Elevation:
First Encounter Dry to -10.0'
Upon Completion n/a
After ____ Hrs. ____

Description	Elev.	DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)
12.0" ASPHALT, 6.0" CRUSHED STONE	725.3				
CLAY LOAM-brown & gray-stiff to hard (A-6) Fill			10 / 10 / 8	7.4B	14
		-5	8 / 8 / 9	6.5B	*114* / 17
			6 / 5 / 5	4.9B	16
Some crushed stone from -8.5' to -10.0'.		-10	6 / 7 / 9	3.5P	13
			5 / 5 / 6	1.25P	16
		-15	5 / 7 / 9	3.7B	15
			5 / 6 / 9	2.2B	15
SILTY CLAY LOAM-brown-very stiff (A-4/A-6) Fill	708.8	-20	6 / 6 / 7	2.75⊕ 11.3%	*122* / 13
			6 / 6 / 6	2.0B	15
CLAY LOAM-dark brown & gray-stiff to very stiff (A-6) Fill	703.8	-25	6 / 7 / 9	2.2B	23
			3 / 4 / 5	1.3B	24
		-30	4 / 4 / 50/2"	1.3B	24
CLAY-gray-very stiff (A-6)	694.8	-35	6 / 7 / 8	3.3B	*103* / 23
CLAY LOAM-gray-very stiff (A-6)	689.8	-40	14 / 13 / 8	2.0P	10

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (BS-Bulge, S-Shear, P-Penetrometer) ST-Shelby Tube Sample VS=Vane Shear Test
The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206) The Unit Dry Weight (pcf) is noted in italics above moist (%)
NR-No Recovery

SOIL BORING LOG

Geo Services, Inc. DATE 12/21-22/2011 LOGGED BY RJ GSI JOB No. 09173
ROUTE IL Route 59 (FAP 338) DESCRIPTION Illinois Route 59-Aurora Avenue/New York Street To Ferry Road
SECTION (112 & 113) WRS-5 LOCATION SEC. 3, 9-10, 15-16, 21-22 TWP. 38N, RNG. 9E, Naperville Township
COUNTY DuPage DRILLING METHOD Hollow Stem Auger/Rotary HAMMER TYPE CME Automatic
STRUCT. No. 022-2030 NB, 022-2029 SB Station: 4058+30.47 IL Rte. 59 BORING NO. BS-01 Station: 4056+62 IL Rte. 59 Offset: 26.5' Left Ground Surface Elev. 726.8
Surface Water Elev. n/a Stream Bed Elev. n/a Groundwater Elevation: First Encounter Dry to -10.0' Upon Completion n/a After ____ Hrs.

Description	Elev.	DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)
CLAY LOAM-gray-very stiff (A-6)	684.8				
CLAY-gray-stiff to hard (A-6)		-45	8 / 14 / 8	1.7B	15
		-50	6 / 9 / 10	4.4B	*111* / 18
		-55	8 / 14 / 21	4.0B	19
		-60	7 / 9 / 10	1.9B	*110* / 20
		-65	8 / 37 / 29	5.0B	24
SANDY CLAY LOAM with Fractured Rock-gray-very dense (A-2)	658.8	-70	31 / 58 / 50/2"	-	10
		-75	43 / 62 / 50/2"	-	9
		-80	66 / 50 / 50/1"	-	9

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (BS-Bulge, S-Shear, P-Penetrometer) ST-Shelby Tube Sample VS=Vane Shear Test
The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206) The Unit Dry Weight (pcf) is noted in italics above moist (%)
NR-No Recovery

SOIL BORING LOG

Geo Services, Inc. DATE 12/21-22/2011 LOGGED BY RJ GSI JOB No. 09173
ROUTE IL Route 59 (FAP 338) DESCRIPTION Illinois Route 59-Aurora Avenue/New York Street To Ferry Road
SECTION (112 & 113) WRS-5 LOCATION SEC. 3, 9-10, 15-16, 21-22 TWP. 38N, RNG. 9E, Naperville Township
COUNTY DuPage DRILLING METHOD Hollow Stem Auger/Rotary HAMMER TYPE CME Automatic
STRUCT. No. 022-2030 NB, 022-2029 SB Station: 4058+30.47 IL Rte. 59 BORING NO. BS-01 Station: 4056+62 IL Rte. 59 Offset: 26.5' Left Ground Surface Elev. 726.8
Surface Water Elev. n/a Stream Bed Elev. n/a Groundwater Elevation: First Encounter Dry to -10.0' Upon Completion n/a After ____ Hrs.

Description	Elev.	DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)
SANDY CLAY LOAM with Fractured Rock-gray-very dense (A-2)	644.8				
SILTY LOAM-gray-very dense (A-4)		-85	67 / 69 / 75	NP	18
	636.8	-90	55 / 69 / 75	NP	18
		-95			
		-100			
		-105			
		-110			
		-115			
		-120			

End Of Boring @ -90.0'
Hollow Stem Augers to -10.0'
Rotary Drilling To Completion
CME Automatic Hammer
10.0' Of 4.0"ø Casing Used

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (BS-Bulge, S-Shear, P-Penetrometer) ST-Shelby Tube Sample VS=Vane Shear Test
The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206) The Unit Dry Weight (pcf) is noted in italics above moist (%)
NR-No Recovery

SOIL BORING LOG

Geo Services Inc.
Geotechnical, Environmental & Civil Engineering
805 Amherst Court, Suite 204
Naperville, Illinois 60565
(630) 355-2838

PAGE 1 of 2
DATE 12/29/2011
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ROUTE IL Route 59 (FAP 338) DESCRIPTION Illinois Route 59–Aurora Avenue/New York Street To Ferry Road
SECTION (112 & 113) WRS-5 LOCATION SEC. 3, 9–10, 15–16, 21–22 TWP. 38N, RNG. 9E, Naperville Township
COUNTY DuPage DRILLING METHOD Hollow Stem Auger/Rotary HAMMER TYPE CME Automatic

STRUCT. No. 022–2030 NB
Station: 4058+30.47 IL Rte. 59
BORING NO. **BS–02**
Station: 4056+86 IL Rte. 59
Offset: 99.5' Left
Ground Surface Elev. 705.6

Surface Water Elev. n/a
Stream Bed Elev. n/a
Groundwater Elevation:
First Encounter *Dry to –10.0'*
Upon Completion n/a
After ____ Hrs. ____

Description	Elev.	DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)
9.0" TOPSOIL–black	704.7		AS	–	22
CLAY LOAM–dark brown & black–stiff (A–6) Fill			3		
			3		
			4	1.75P	20
			3		
			3		
		–5	3	1.75P	20
			2		
			2		
	697.6		2	1.75P	17
CLAY–gray–very stiff to hard (A–6)			3		*110*
			3		
		–10	7	3.9B	17
			4		*98*
			5		
			10	4.7B	21
			3		*108*
			5		
	690.1	–15	9	2.3B	21
SILTY SAND & GRAVEL–gray–medium dense (A–2)			6		
			9		
	687.6		11	NP	17
CLAY LOAM–gray–stiff to very stiff (A–6)			3		*121*
			5		
		–20	7	1.9B	12

Description	Elev.	DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)
CLAY LOAM–gray–stiff to very stiff (A–6)			5		
			6		
			19	2.6B	12
			6		
			7		
		–25	7		NR
			4		*122*
			5		
	677.6		6	2.3B	14
SILTY LOAM–gray–medium dense (A–4)			6		
			10		
	673.6	–30	11	NP	28
CLAY to CLAY LOAM–gray–stiff to very stiff (A–6)			3		*112*
			6		
		–35	6	1.6B	19
			4		
			5		
		–40	7	2.6B	21

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B–Bulge, S–Shear, P–Penetrometer) ST–Shelby Tube Sample VS–Vane Shear Test
The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206) The Unit Dry Weight (pcf) is noted in italics above moist (%)
NR–No Recovery

SOIL BORING LOG

Geo Services Inc.
Geotechnical, Environmental & Civil Engineering
805 Amherst Court, Suite 204
Naperville, Illinois 60565
(630) 355-2838

PAGE 2 of 2
DATE 12/29/2011
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GSI JOB No. 09173

ROUTE IL Route 59 (FAP 338) DESCRIPTION Illinois Route 59–Aurora Avenue/New York Street To Ferry Road
SECTION (112 & 113) WRS-5 LOCATION SEC. 3, 9–10, 15–16, 21–22 TWP. 38N, RNG. 9E, Naperville Township
COUNTY DuPage DRILLING METHOD Hollow Stem Auger/Rotary HAMMER TYPE CME Automatic

STRUCT. No. 022–2030 NB
Station: 4058+30.47 IL Rte. 59
BORING NO. **BS–02**
Station: 4056+86 IL Rte. 59
Offset: 99.5' Left
Ground Surface Elev. 705.6

Surface Water Elev. n/a
Stream Bed Elev. n/a
Groundwater Elevation:
First Encounter *Dry to –10.0'*
Upon Completion n/a
After ____ Hrs. ____

Description	Elev.	DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)
CLAY to CLAY LOAM–gray–stiff to very stiff (A–6)	663.6				
SANDY LOAM with Fractured Rock–gray–very dense (A–2)			100/5"		
		–45		NP	9
			100/4"		
	653.6	–50		NP	11
Clayey SAND–gray–very dense (A–2)			27		
			38		
	648.6	–55	51	–	19
SILTY LOAM–gray–very dense (A–4)			31		
			45		
		–60	51	NP	19

Description	Elev.	DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)
SILTY LOAM–gray–very dense (A–4)	643.6				
SANDY LOAM to LOAM–gray–very dense (A–2)			28		
			39		
	640.6	–65	51	NP	19
		–70			
		–75			
		–80			

End Of Boring @ –65.0'
Hollow Stem Augers to –10.0'
Rotary Drilling To Completion
CME Automatic Hammer
10.0' Of 4.0"ø Casing Used

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B–Bulge, S–Shear, P–Penetrometer) ST–Shelby Tube Sample VS–Vane Shear Test
The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206) The Unit Dry Weight (pcf) is noted in italics above moist (%)
NR–No Recovery

Geo Services Inc.
Geotechnical, Environmental & Civil Engineering
805 Aribert Court, Suite 204
Naperville, Illinois 60565
(630) 904-2468

SOIL BORING LOG

PAGE 1 of 2
DATE 12/21-22/2011
LOGGED BY RJ
GSI JOB No. 09173

ROUTE IL Route 59 (FAP 338) DESCRIPTION Illinois Route 59-Aurora Avenue/New York Street To Ferry Road
SECTION (112 & 113) WRS-5 LOCATION SEC. 3, 9-10, 15-16, 21-22 TWP. 38N, RNG. 9E, Naperville Township
COUNTY DuPage DRILLING METHOD Hollow Stem Auger/Rotary HAMMER TYPE CME Automatic

STRUCT. No. 022-2030 NB
Station: 4058+30.47 IL Rte. 59
BORING NO. **BS-03**
Station: 4058+23 IL Rte. 59
Offset: 39.5' Left
Ground Surface Elev. 706.5

Surface Water Elev. n/a
Stream Bed Elev. n/a
Groundwater Elevation:
First Encounter Dry to -10.0'
Upon Completion n/a
After ____ Hrs. ____

DEPTH (ft)	BLOWS /6"	UCS Qu (tsf)	MOIST (%)	
				6.0" ASPHALT 706.0
	31			
	17			CRUSHED STONE-medium dense (Fill)
	11	NP	8	703.5
	7			CLAY LOAM-dark brown, gray & black-very stiff (A-6) Fill
	7			
-5	7	3.25P	20	701.0
	5			SILTY CLAY LOAM with Stone-brown & gray-medium dense (Fill)
	5			
	7	1.5P	17	698.6
	5		110	
	7			CLAY LOAM-brown & gray-very stiff (A-6) Fill
-10	8	3.3B	18	
	5			Some crushed stone from -11.0' to -12.5'.
	5			
	6	-	24	693.5
	3			CLAY-gray-very stiff (A-6)
	6			
-15	10	3.3B	20	691.0
	7			SANDY CLAY LOAM with Fractured Rock-gray-medium dense (A-2)
	15			
	11	-	12	
	11			
	12			
-20	15	-	10	

DEPTH (ft)	BLOWS /6"	UCS Qu (tsf)	MOIST (%)	
				SANDY CLAY LOAM-gray (A-2) 686.0
	7			
	11			
	18	NP	8	SAND & GRAVEL-gray-medium dense (A-1)
	8			
	11			
-25	13	NP	8	681.0
	10			CLAY LOAM-gray-very stiff (A-6)
	8			
	8	2.3B	10	
	6			
	8			
-30	7	2.5B	12	
				674.6
	10			SILTY LOAM-gray-medium dense (A-4)
	12			
-35	14	NP	22	
				669.5
	12			CLAY-gray-stiff (A-6)
	10			
-40	10	1.8B	18	

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B-Bulge, S-Shear, P-Penetrometer) ST-Shelby Tube Sample VS-Vane Shear Test
The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206) The Unit Dry Weight (pcf) is noted in italics above moist (%)
NR-No Recovery

Geo Services Inc.
Geotechnical, Environmental & Civil Engineering
805 Aribert Court, Suite 204
Naperville, Illinois 60565
(630) 904-2468

SOIL BORING LOG

PAGE 2 of 2
DATE 12/21-22/2011
LOGGED BY RJ
GSI JOB No. 09173

ROUTE IL Route 59 (FAP 338) DESCRIPTION Illinois Route 59-Aurora Avenue/New York Street To Ferry Road
SECTION (112 & 113) WRS-5 LOCATION SEC. 3, 9-10, 15-16, 21-22 TWP. 38N, RNG. 9E, Naperville Township
COUNTY DuPage DRILLING METHOD Hollow Stem Auger/Rotary HAMMER TYPE CME Automatic

STRUCT. No. 022-2030 NB
Station: 4058+30.47 IL Rte. 59
BORING NO. **BS-03**
Station: 4058+23 IL Rte. 59
Offset: 39.5' Left
Ground Surface Elev. 706.5

Surface Water Elev. n/a
Stream Bed Elev. n/a
Groundwater Elevation:
First Encounter Dry to -10.0'
Upon Completion n/a
After ____ Hrs. ____

DEPTH (ft)	BLOWS /6"	UCS Qu (tsf)	MOIST (%)	
				CLAY-gray-stiff (A-6)
				664.6
				CLAY LOAM-gray-medium dense (A-6)
	8			
	12			
-45	13	-	24	
				659.6
	21			SANDY CLAY LOAM-gray-dense to very dense (A-2)
	19			
-50	20	-	11	
	54			
	66			
-55	72	-	11	
				649.6
	31			SILTY LOAM-gray-very dense (A-4)
	73			
-60	84	NP	16	

DEPTH (ft)	BLOWS /6"	UCS Qu (tsf)	MOIST (%)	
				SILTY LOAM-gray-very dense (A-4)
				644.5
	38			SANDY CLAY LOAM-gray-very dense (A-2)
	79			
-65	91	-	8	641.5
				End Of Boring @ -65.0'
				Hollow Stem Augers to -10.0'
				Rotary Drilling To Completion
				CME Automatic Hammer
				10.0' Of 4.0"ø Casing Used
-70				
-75				
-80				

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B-Bulge, S-Shear, P-Penetrometer) ST-Shelby Tube Sample VS-Vane Shear Test
The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206) The Unit Dry Weight (pcf) is noted in italics above moist (%)
NR-No Recovery

KNIGHT Engineers & Architects		DESIGNED - GSI	REVISED	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION
		CHECKED - WPM	REVISED	
	SCALE - NONE	DRAWN - TB	REVISED	
	DATE - 10/15/2012	CHECKED - WPM	REVISED	

SOIL BORING LOGS
S.N. 022-2029 (SB) TOLLWAY B.N. 826
S.N. 022-2030 (NB) TOLLWAY B.N. 825
SHEET NO. SA-58 OF 63 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
338	(112 & 113) WRS-5	DUPAGE	963	642
		CONTRACT NO. 60I31		
	ILLINOIS FED. AID PROJECT			

Geo Services Inc.
Geotechnical, Environmental & Civil Engineering
805 Arbor Lake Drive Suite 204
Naperville, Illinois 60565
(630) 305-1269

SOIL BORING LOG

PAGE 1 of 2
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LOGGED BY RJ
GSI JOB No. 09173

ROUTE IL Route 59 (FAP 338) DESCRIPTION Illinois Route 59–Aurora Avenue/New York Street To Ferry Road
SECTION (112 & 113) WRS–5 LOCATION SEC. 3, 9–10, 15–16, 21–22 TWP. 38N, RNG. 9E, Naperville Township
COUNTY DuPage DRILLING METHOD Hollow Stem Auger/Rotary HAMMER TYPE CME Automatic

STRUCT. No. 022–2030 NB
Station: 4058+30.47 IL Rte. 59
BORING NO. **BS–04**
Station: 4059+26 IL Rte. 59
Offset: 113.6' Left
Ground Surface Elev. 705.8

Surface Water Elev. n/a
Stream Bed Elev. n/a
Groundwater Elevation:
First Encounter Dry to –10.0'
Upon Completion n/a
After ____ Hrs. ____

DEPTH (ft)	BLOWS /6"	UCS Qu (tsf)	MOIST (%)	Soil Description
				6.0" TOPSOIL–black 705.3
	AS	–	33	
	6			
	6			
	7	1.75P	22	CLAY LOAM–dark brown to black–stiff (A–6) Fill
	6			
	5			
–5	7	1.5P	28	
				700.3
	3		98	
	5			
	7	2.3B	22	CLAY–brown & gray–very stiff to hard (A–6)
	5		105	
	9			
–10	14	6.2B	19	
				695.3
	4		107	
	5			CLAY–gray–very stiff (A–6)
	8	2.8B	21	
				692.8
	8			CLAYEY SAND & GRAVEL–gray medium dense (A–2)
	9			
–15	11	–	12	
				690.3
	3			
	7			
	11	1.0P	10	CLAY LOAM with Gravel–gray–stiff (A–6)
	5			
	5			
–20	8	1.75P	11	
	4			CLAY LOAM with Gravel–gray–stiff (A–6)
	4		121	
	4			
	7	1.4B	12	
				682.8
	3			CLAY LOAM–gray–stiff (A–6)
	4			
–25	6	–	15	
	3		122	
	10			
	8	1.4B	14	
	4			
	5			
–30	6	1.4B	18	
	5			
	8			
	9			
–35	9	1.4B	13	
				668.8
	4		102	CLAY–gray–stiff to very stiff (A–6)
	5			
–40	6	2.3B	22	

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (BS–Bulge, S–Shear, P–Penetrometer) ST–Shelby Tube Sample VS–Vane Shear Test
The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206) The Unit Dry Weight (pcf) is noted in Italics above moist (%)
NR–No Recovery

Geo Services Inc.
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(630) 305-1269

SOIL BORING LOG

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LOGGED BY RJ
GSI JOB No. 09173

ROUTE IL Route 59 (FAP 338) DESCRIPTION Illinois Route 59–Aurora Avenue/New York Street To Ferry Road
SECTION (112 & 113) WRS–5 LOCATION SEC. 3, 9–10, 15–16, 21–22 TWP. 38N, RNG. 9E, Naperville Township
COUNTY DuPage DRILLING METHOD Hollow Stem Auger/Rotary HAMMER TYPE CME Automatic

STRUCT. No. 022–2030 NB
Station: 4058+30.47 IL Rte. 59
BORING NO. **BS–04**
Station: 4059+26 IL Rte. 59
Offset: 113.6' Left
Ground Surface Elev. 705.8

Surface Water Elev. n/a
Stream Bed Elev. n/a
Groundwater Elevation:
First Encounter Dry to –10.0'
Upon Completion n/a
After ____ Hrs. ____

DEPTH (ft)	BLOWS /6"	UCS Qu (tsf)	MOIST (%)	Soil Description
				CLAY–gray–stiff to very stiff (A–6)
	5		88	
	9			
–45	17	1.6B	25	
				668.8
	51			
	22			
–50	95/2"NP		9	SANDY LOAM–gray–medium dense to very dense (A–2)
	14			
	13			
–55	12	NP	11	
				648.8
	10			CLAY LOAM–gray–hard (A–6)
	11			
–60	11	5.6B	13	
				CLAY LOAM–gray–hard (A–6)
				643.8
	14			
	15			
–65	20	–	13	
				SANDY CLAY LOAM with Gravel–gray–dense to very dense (A–2)
	37			
	41			
–70	52	NP	9	
				633.8
	100/1"			FRACTURED ROCK–grey–very dense (A–1)
				631.8
–75		NP	25	
				Drillers Observation: Possible Bedrock
				628.8
				End Of Boring @ –77.0'
				Hollow Stem Augers to –10.0'
				Rotary Drilling To Completion
				CME Automatic Hammer
				10.0' Of 4.0"ø Casing Used
–80				

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (BS–Bulge, S–Shear, P–Penetrometer) ST–Shelby Tube Sample VS–Vane Shear Test
The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206) The Unit Dry Weight (pcf) is noted in Italics above moist (%)
NR–No Recovery

KNIGHT
Engineers & Architects

		DESIGNED - GSI	REVISED
		CHECKED - WPM	REVISED
SCALE - NONE		DRAWN - TB	REVISED
DATE - 10/15/2012		CHECKED - WPM	REVISED

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

SOIL BORING LOGS
S.N. 022–2029 (SB) TOLLWAY B.N. 826
S.N. 022–2030 (NB) TOLLWAY B.N. 825
SHEET NO. SA–59 OF 63 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
338	(112 & 113) WRS–5	DUPAGE	963	643
		CONTRACT NO. 60I31		
	ILLINOIS FED. AID PROJECT			

Geo Services Inc.
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Naperville, Illinois 60565
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SOIL BORING LOG

PAGE 1 of 2
DATE 1/3/2012
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GSI JOB No. 09173

ROUTE IL Route 59 (FAP 338) DESCRIPTION Illinois Route 59–Aurora Avenue/New York Street To Ferry Road
SECTION (112 & 113) WRS-5 LOCATION SEC. 3, 9–10, 15–16, 21–22 TWP. 38N, RNG. 9E, Naperville Township
COUNTY DuPage DRILLING METHOD Hollow Stem Auger/Rotary HAMMER TYPE CME Automatic

STRUCT. No. 022–2029 SB
Station: 4058+30.47 IL Rte. 59
BORING NO. **BS–05**
Station: 4057+33 IL Rte. 59
Offset: 159.1' Right
Ground Surface Elev. 696.4

Surface Water Elev. n/a
Stream Bed Elev. n/a
Groundwater Elevation:
First Encounter Dry to –10.0'
Upon Completion n/a
After ____ Hrs. ____

DEPTH (ft)	BLOWS /6"	UCS Qu (tsf)	MOIST (%)
6.0" TOPSOIL–dark brown to black 695.9			
	AS	–	21
	5		
CLAY LOAM–dark brown–hard (A–6) Fill	6		
	7	4.6B	14
692.4	4		
SILTY CLAY–dark brown & gray–stiff (A–6) –5	4		
	3	1.25P	24
690.4	4		
SILTY LOAM–brown–medium dense (A–4)	6		
	7	NP	21
688.4	5		*111*
	7		
CLAY–gray–stiff to very stiff (A–6) –10	10	3.8B	18
	6		*111*
	7		
	8	3.9B	19
	5		
	5		
–15	6	1.0P	26
	4		*106*
	6		
678.4	10	3.0B	19
CLAY LOAM–gray–very stiff (A–6)	4		
	7		
–20	7	2.2SB	20

DEPTH (ft)	BLOWS /6"	UCS Qu (tsf)	MOIST (%)
CLAY LOAM–gray–very stiff (A–6) 675.9			
	7		
	5		
SANDY CLAY LOAM–gray–medium dense (A–6)	6	–	10
	12		
670.9 –25	12		
	15	–	14
	10		
SAND & GRAVEL–gray–medium dense (A–1)	12		
	14	NP	10
668.4	4		*104*
	6		
CLAY–gray–very stiff (A–6) –30	9	3.0B	23
664.4			
	11		
	12		
SILTY LOAM–brown & gray–medium dense (A–4) –35	12	NP	22
659.4			
CLAY–gray–very stiff (A–6)	3		*104*
	5		
–40	10	2.3B	22

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (BS–Bulge, S–Shear, P–Penetrometer) ST–Shelby Tube Sample VS–Vane Shear Test
The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206) The Unit Dry Weight (pcf) is noted in italics above moist (%)
NR–No Recovery

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(630) 961-7588

SOIL BORING LOG

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LOGGED BY RJ
GSI JOB No. 09173

ROUTE IL Route 59 (FAP 338) DESCRIPTION Illinois Route 59–Aurora Avenue/New York Street To Ferry Road
SECTION (112 & 113) WRS-5 LOCATION SEC. 3, 9–10, 15–16, 21–22 TWP. 38N, RNG. 9E, Naperville Township
COUNTY DuPage DRILLING METHOD Hollow Stem Auger/Rotary HAMMER TYPE CME Automatic

STRUCT. No. 022–2029 SB
Station: 4058+30.47 IL Rte. 59
BORING NO. **BS–05**
Station: 4057+33 IL Rte. 59
Offset: 159.1' Right
Ground Surface Elev. 696.4

Surface Water Elev. n/a
Stream Bed Elev. n/a
Groundwater Elevation:
First Encounter Dry to –10.0'
Upon Completion n/a
After ____ Hrs. ____

DEPTH (ft)	BLOWS /6"	UCS Qu (tsf)	MOIST (%)
CLAY–gray–very stiff (A–6)			
654.4			
SILTY SAND & GRAVEL–gray–medium dense (A–2)	17		
	5		
–45	6	NP	9
649.4			
SANDY CLAY LOAM with Fractured Rock–gray–very dense (A–2)	100/5"		
–50		–	10
644.4			
CLAY LOAM–gray–hard (A–6)	22		
	37		
–55	35	4.5+P	9
639.4			
SILTY LOAM–gray–very dense (A–4)	32		
	45		
–60	100/4"	NP	17

DEPTH (ft)	BLOWS /6"	UCS Qu (tsf)	MOIST (%)
SILTY LOAM–gray–very dense (A–4)			
634.4			
SANDY LOAM–gray–very dense (A–2)	27		
	46		
631.4 –65	51	NP	16
End Of Boring @ –65.0'			
Hollow Stem Augers to –10.0'			
Rotary Drilling To Completion			
CME Automatic Hammer			
10.0' Of 4.0"ø Casing Used			
–70			
–75			
–80			

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (BS–Bulge, S–Shear, P–Penetrometer) ST–Shelby Tube Sample VS–Vane Shear Test
The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206) The Unit Dry Weight (pcf) is noted in italics above moist (%)
NR–No Recovery

KNIGHT Engineers & Architects		DESIGNED - GSI	REVISED	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION
		CHECKED - WPM	REVISED	
	SCALE - NONE	DRAWN - TB	REVISED	
	DATE - 10/15/2012	CHECKED - WPM	REVISED	

SOIL BORING LOGS
S.N. 022–2029 (SB) TOLLWAY B.N. 826
S.N. 022–2030 (NB) TOLLWAY B.N. 825
SHEET NO. SA-60 OF 63 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
338	(112 & 113) WRS-5	DUPAGE	963	644
		CONTRACT NO. 60131		
	ILLINOIS FED. AID PROJECT			

Geo Services Inc.
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SOIL BORING LOG

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LOGGED BY RJ
GSI JOB No. 09173

ROUTE IL Route 59 (FAP 338) DESCRIPTION Illinois Route 59-Aurora Avenue/New York Street To Ferry Road
SECTION (112 & 113) WRS-5 LOCATION SEC. 3, 9-10, 15-16, 21-22 TWP. 38N, RNG. 9E, Naperville Township
COUNTY DuPage DRILLING METHOD Hollow Stem Auger/Rotary HAMMER TYPE CME Automatic

STRUCT. No. 022-2029 SB
Station: 4058+30.47 IL Rte. 59
BORING NO. **BS-06**
Station: 4058+40 IL Rte. 59
Offset: 77.0' Right
Ground Surface Elev. 706.2

Surface Water Elev. n/a
Stream Bed Elev. n/a
Groundwater Elevation:
First Encounter Dry to -10.0'
Upon Completion n/a
After ____ Hrs. ____

DEPTH (ft)	BLOWS /6"	UCS Qu (tsf)	MOIST (%)	Description
705.7				6.0" ASPHALT
	30			
	40			CRUSHED STONE-dense (Fill)
	15	NP	7	
703.2				
	4		101	
	5			
-5	7	2.3B	20	
	7		110	
	8			CLAY LOAM-brown-
	10	5.9B	18	very stiff to hard (A-6)
	7		104	
	9			
-10	11	5.9B	20	
	6		107	
	12			
	15	7.5B	19	
694.2				
	5		108	CLAY-gray-very stiff (A-6)
	8			
-15	10	3.4B	20	
690.7				
	4			
	6			CLAY LOAM-gray-
	8	-	16	stiff to very stiff (A-6)
	15		135	
	13			
-20	11	2.5B	10	

DEPTH (ft)	BLOWS /6"	UCS Qu (tsf)	MOIST (%)	Description
	5		122	CLAY LOAM-gray-
	5			stiff to very stiff (A-6)
	6	1.8B	11	
	4			
	5			
-25	20	2.8B	12	
	5			
	8			
	10	1.4B	11	
	4		127	
	6			
-30	10	1.6B	12	
	5		111	
	9			
-35	9	2.8B	19	
	5			
	7			
-40	9	2.6B	27	

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (BS-Bulge, S-Shear, P-Penetrometer) ST-Shelby Tube Sample VS-Vane Shear Test
The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206) The Unit Dry Weight (pcf) is noted in italics above moist (%)
NR-No Recovery

Geo Services Inc.
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Naperville, Illinois 60565
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SOIL BORING LOG

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ROUTE IL Route 59 (FAP 338) DESCRIPTION Illinois Route 59-Aurora Avenue/New York Street To Ferry Road
SECTION (112 & 113) WRS-5 LOCATION SEC. 3, 9-10, 15-16, 21-22 TWP. 38N, RNG. 9E, Naperville Township
COUNTY DuPage DRILLING METHOD Hollow Stem Auger/Rotary HAMMER TYPE CME Automatic

STRUCT. No. 022-2029 SB
Station: 4058+30.47 IL Rte. 59
BORING NO. **BS-06**
Station: 4058+40 IL Rte. 59
Offset: 77.0' Right
Ground Surface Elev. 706.2

Surface Water Elev. n/a
Stream Bed Elev. n/a
Groundwater Elevation:
First Encounter Dry to -10.0'
Upon Completion n/a
After ____ Hrs. ____

DEPTH (ft)	BLOWS /6"	UCS Qu (tsf)	MOIST (%)	Description
				CLAY LOAM-gray-
				stiff to very stiff (A-6)
664.2				
				Clayey SAND & GRAVEL-gray-
	22			medium dense (A-2)
	12			
-45	13	-	9	
659.2				
	17			
	21			
-50	44	NP	9	SANDY CLAY LOAM-gray-
				very dense (A-2)
	34			
	50			
-55	50/2"	NP	11	
649.2				
	42			SILTY LOAM to LOAM-gray-
	64			very dense (A-4)
-60	90	NP	15	

DEPTH (ft)	BLOWS /6"	UCS Qu (tsf)	MOIST (%)	Description
	38			SILTY LOAM to LOAM-gray-
	58			very dense (A-4)
-65	62	NP	17	
639.2				
	42			
	67			Clayey SAND & GRAVEL-gray-
-70	63	NP	11	very dense (A-2)
634.2				
	57			SAND-gray-very dense (A-3)
	62			
631.2 -75	65	NP	18	
				End Of Boring @ -75.0'
				Hollow Stem Augers to -10.0'
				Rotary Drilling To Completion
				CME Automatic Hammer
				10.0' Of 4.0"ø Casing Used
-80				

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (BS-Bulge, S-Shear, P-Penetrometer) ST-Shelby Tube Sample VS-Vane Shear Test
The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206) The Unit Dry Weight (pcf) is noted in italics above moist (%)
NR-No Recovery

KNIGHT
Engineers & Architects

		DESIGNED - GSI	REVISED
		CHECKED - WPM	REVISED
SCALE - NONE		DRAWN - TB	REVISED
DATE - 10/15/2012		CHECKED - WPM	REVISED

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

SOIL BORING LOGS
S.N. 022-2029 (SB) TOLLWAY B.N. 826
S.N. 022-2030 (NB) TOLLWAY B.N. 825
SHEET NO. SA-61 OF 63 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
338	(112 & 113) WRS-5	DUPAGE	963	645
		CONTRACT NO. 60131		
	ILLINOIS FED. AID PROJECT			

SOIL BORING LOG

Geo Services, Inc.
Geotechnical, Environmental & Civil Engineering
805 Amherst Court, Suite 204
Naperville, Illinois 60565
(630) 355-2838

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DATE 12/27/2011
LOGGED BY RJ
GSI JOB No. 09173

ROUTE IL Route 59 (FAP 338) DESCRIPTION Illinois Route 59–Aurora Avenue/New York Street To Ferry Road
SECTION (112 & 113) WRS-5 LOCATION SEC. 3, 9-10, 15-16, 21-22 TWP. 38N, RNG. 9E, Naperville Township
COUNTY DuPage DRILLING METHOD Hollow Stem Auger/Rotary HAMMER TYPE CME Automatic

STRUCT. No. 022-2029 SB
Station: 4058+30.47 IL Rte. 59
BORING NO. **BS-07**
Station: 4059+58 IL Rte. 59
Offset: 120.5' Right
Ground Surface Elev. 706.0

Surface Water Elev. n/a
Stream Bed Elev. n/a
Groundwater Elevation:
First Encounter Dry to -10.0'
Upon Completion n/a
After ____ Hrs. ____

Description	Elev.	DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)
6.0" TOPSOIL-black	705.5				
CLAY LOAM-brown-hard (A-6) Fill			AS	–	15
			4		
			8		
	703.0		10	4.5P	18
SILTY CLAY-dark gray to black-stiff (A-6) Wet			4		
			4		
	700.5	-5	6	1.9B	29
CLAY LOAM-brown-very stiff (A-6)			4		
			5		
			6	2.8B	17
			5		*110*
			6		
		-10	8	3.2B	17
			6		*113*
			6		
	693.0		8	3.5B	18
CLAY LOAM-gray-stiff to very stiff (A-6)			5		*109*
			5		
		-15	5	2.3B	20
			3		*106*
			3		
			5	1.3B	22
			12		
			16		
		-20	19	1.5P	23
CLAY LOAM-stiff to very stiff (A-6)	685.5				
SANDY CLAY LOAM-gray-medium dense (A-2)			13		
			6		
	683.0		6	–	11
CLAY LOAM-gray-very stiff (A-6)			1		*128*
			6		
		-25	7	2.0B	12
			5		*130*
			6		
			8	2.8B	11
			5		*122*
			6		
		-30	8	2.7B	13
			5		*115*
			9		
		-35	21	3.1B	17
			4		*112*
			6		
		-40	7	2.9B	19

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (BS-Bulge, S-Shear, P-Penetrometer) ST-Shelby Tube Sample VS=Vane Shear Test
The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206) The Unit Dry Weight (pcf) is noted in italics above moist (%)
NR-No Recovery

SOIL BORING LOG

Geo Services, Inc.
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LOGGED BY RJ
GSI JOB No. 09173

ROUTE IL Route 59 (FAP 338) DESCRIPTION Illinois Route 59–Aurora Avenue/New York Street To Ferry Road
SECTION (112 & 113) WRS-5 LOCATION SEC. 3, 9-10, 15-16, 21-22 TWP. 38N, RNG. 9E, Naperville Township
COUNTY DuPage DRILLING METHOD Hollow Stem Auger/Rotary HAMMER TYPE CME Automatic

STRUCT. No. 022-2029 SB
Station: 4058+30.47 IL Rte. 59
BORING NO. **BS-07**
Station: 4059+58 IL Rte. 59
Offset: 120.5' Right
Ground Surface Elev. 706.0

Surface Water Elev. n/a
Stream Bed Elev. n/a
Groundwater Elevation:
First Encounter Dry to -10.0'
Upon Completion n/a
After ____ Hrs. ____

Description	Elev.	DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)
CLAY LOAM-gray-very stiff (A-6)	664.0				
SILTY LOAM-gray-medium dense (A-4)			5		
			10		
	659.0	-45	15	–	18
SANDY LOAM with Gravel-gray-very dense (A-2)			21		
			64		
		-50	46	NP	9
			32		
			41		
	649.0	-55	95	NP	9
LOAM-gray-very dense (A-4)			32		
			63		
		-60	98	NP	16
LOAM-gray-very dense (A-4)			53		
			75		
	641.0	-65	93	NP	16
End Of Boring @ -65.0' Hollow Stem Augers to -10.0' Rotary Drilling To Completion CME Automatic Hammer 10.0' Of 4.0"ø Casing Used					
		-70			
		-75			
		-80			

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (BS-Bulge, S-Shear, P-Penetrometer) ST-Shelby Tube Sample VS=Vane Shear Test
The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206) The Unit Dry Weight (pcf) is noted in italics above moist (%)
NR-No Recovery

KNIGHT Engineers & Architects	SCALE - NONE	DESIGNED - GSI	REVISED
	DATE - 10/15/2012	CHECKED - WPM	REVISED
		DRAWN - TB	REVISED
		CHECKED - WPM	REVISED

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

SOIL BORING LOGS
S.N. 022-2029 (SB) TOLLWAY B.N. 826
S.N. 022-2030 (NB) TOLLWAY B.N. 825
SHEET NO. SA-62 OF 63 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
338	(112 & 113) WRS-5	DUPAGE	963	646

CONTRACT NO. 60I31
ILLINOIS FED. AID PROJECT

SOIL BORING LOG

Geo Services, Inc.
Geotechnical, Environmental & Civil Engineering
805 Amherst Court, Suite 204
Naperville, Illinois 60565
(630) 355-2838

PAGE 1 of 3
DATE 1/6-1/7/2012
LOGGED BY RJ
GSI JOB No. 09173

ROUTE IL Route 59 (FAP 338) DESCRIPTION Illinois Route 59-Aurora Avenue/New York Street To Ferry Road
SECTION (112 & 113) WRS-5 LOCATION SEC. 3, 9-10, 15-16, 21-22 TWP. 38N, RNG. 9E, Naperville Township
COUNTY DuPage DRILLING METHOD Hollow Stem Auger/Rotary HAMMER TYPE CME Automatic
STRUCT. No. 022-2030 NB, 022-2029 SB
Station: 4058+30.47 IL Rte. 59
BORING NO. **BS-08**
Station: 4060+71 IL Rte. 59
Offset: 28.4' Right
Ground Surface Elev. 728.3

Surface Water Elev. n/a
Stream Bed Elev. n/a
Groundwater Elevation:
First Encounter Dry to -10.0'
Upon Completion n/a
After ___ Hrs. ___

Description	Elev.	DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)
14.0" ASPHALT, 4.0" CRUSHED STONE	726.8				
CLAY LOAM–brown & gray–very stiff (A-6) Fill			7 7 8	9.3B	15
		-5	3 3 4	3.5B	19
			3 4 4	6.4B	14
		-10	4 4 5	5.1B	16
			1 5 10	–	17
		-15	1 5 10	5.8B	*108* 18
			1 6 9	5.1B	*106* 21
	709.8				
GRAVEL–brown–medium dense (A-1) Fill	708.3	-20	5 7 9	NP	3

Description	Elev.	DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)
CLAY LOAM–brown & gray–stiff to very stiff (A-6) Fill			8 4 6	–	25
	702.8	-25	4 4 7	3.0B	*108* 22
SILTY CLAY LOAM–brown & gray–stiff (A-4/A-6)	700.3		5 6 7	1.2B	14
CLAY–brown & gray–stiff (A-6)	696.3	-30	12 8 9	1.4B	17
CLAY–gray–hard (A-6)	691.3	-35	5 6 9	5.1B	*113* 18
Clayey SAND & GRAVEL–gray–loose to medium dense (A-2)		-40	3 4 5		NR

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (BS-Bulge, S-Shear, P-Penetrometer) ST-Shelby Tube Sample VS-Vane Shear Test
The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206) The Unit Dry Weight (pcf) is noted in italics above moist (%)
NR-No Recovery

SOIL BORING LOG

Geo Services, Inc.
Geotechnical, Environmental & Civil Engineering
805 Amherst Court, Suite 204
Naperville, Illinois 60565
(630) 355-2838

PAGE 2 of 3
DATE 1/6-1/7/2012
LOGGED BY RJ
GSI JOB No. 09173

ROUTE IL Route 59 (FAP 338) DESCRIPTION Illinois Route 59-Aurora Avenue/New York Street To Ferry Road
SECTION (112 & 113) WRS-5 LOCATION SEC. 3, 9-10, 15-16, 21-22 TWP. 38N, RNG. 9E, Naperville Township
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STRUCT. No. 022-2030 NB, 022-2029 SB
Station: 4058+30.47 IL Rte. 59
BORING NO. **BS-08**
Station: 4060+71 IL Rte. 59
Offset: 28.4' Right
Ground Surface Elev. 728.3

Surface Water Elev. n/a
Stream Bed Elev. n/a
Groundwater Elevation:
First Encounter Dry to -10.0'
Upon Completion n/a
After ___ Hrs. ___

Description	Elev.	DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)
Clayey SAND & GRAVEL–gray–loose to medium dense (A-2)		-45	10 11 12	–	15
	681.3				
CLAY LOAM–gray–stiff to very stiff (A-6)		-50	4 5 6	2.3B	*123* 11
		-55	5 10 22	5.5B	*111* 13
		-60	4 6 8	2.3B	*107* 17

Description	Elev.	DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)
CLAY LOAM–gray–stiff to very stiff (A-6)		-65	4 6 8	3.3B	20
	661.3				
Clayey SAND & GRAVEL–gray–very dense (A-2)		-70	40 100/5"	–	12
	656.3				
SANDY CLAY LOAM–gray–dense (A-2)		-75	14 16 19	–	10
		-80	8 17 78	1.75P	10

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (BS-Bulge, S-Shear, P-Penetrometer) ST-Shelby Tube Sample VS-Vane Shear Test
The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206) The Unit Dry Weight (pcf) is noted in italics above moist (%)
NR-No Recovery

SOIL BORING LOG

Geo Services, Inc.
Geotechnical, Environmental & Civil Engineering
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Naperville, Illinois 60565
(630) 355-2838

PAGE 3 of 3
DATE 1/6-1/7/2012
LOGGED BY RJ
GSI JOB No. 09173

ROUTE IL Route 59 (FAP 338) DESCRIPTION Illinois Route 59-Aurora Avenue/New York Street To Ferry Road
SECTION (112 & 113) WRS-5 LOCATION SEC. 3, 9-10, 15-16, 21-22 TWP. 38N, RNG. 9E, Naperville Township
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STRUCT. No. 022-2030 NB, 022-2029 SB
Station: 4058+30.47 IL Rte. 59
BORING NO. **BS-08**
Station: 4060+71 IL Rte. 59
Offset: 28.4' Right
Ground Surface Elev. 728.3

Surface Water Elev. n/a
Stream Bed Elev. n/a
Groundwater Elevation:
First Encounter Dry to -10.0'
Upon Completion n/a
After ___ Hrs. ___

Description	Elev.	DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)
SANDY CLAY LOAM–gray–dense (A-2)	646.3				
Clayey SAND & GRAVEL–gray–very dense (A-2)		-85	44 54 68	–	9
	641.3				
SANDY LOAM–gray–very dense (A-2)		-90	44 54 68	NP	8
	636.3				
SAND, GRAVEL & FRACTURED ROCK–gray–very dense (A-1)	633.3	-95	29 50/2"	NP	9
End Of Boring @ -95.0' Hollow Stem Augers to -10.0' Rotary Drilling To Completion CME Automatic Hammer 10.0' Of 4.0"ø Casing Used		-100			

Depth column continues to -105, -110, -115, -120 (no data).

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (BS-Bulge, S-Shear, P-Penetrometer) ST-Shelby Tube Sample VS-Vane Shear Test
The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206) The Unit Dry Weight (pcf) is noted in italics above moist (%)
NR-No Recovery

KNIGHT Engineers & Architects		DESIGNED - GSI	REVISED
		CHECKED - WPM	REVISED
	SCALE - NONE	DRAWN - TB	REVISED
	DATE - 10/15/2012	CHECKED - WPM	REVISED

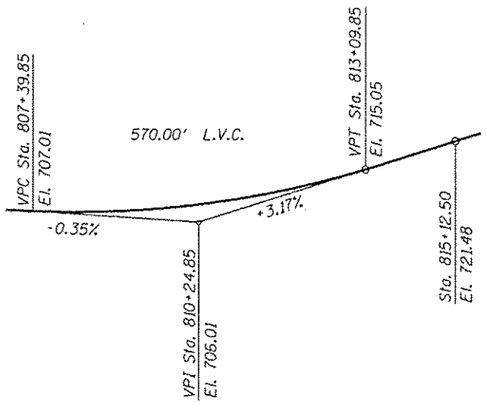
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

SOIL BORING LOGS
S.N. 022-2029 (SB) TOLLWAY B.N. 826
S.N. 022-2030 (NB) TOLLWAY B.N. 825
SHEET NO. SA-63 OF 63 SHEETS

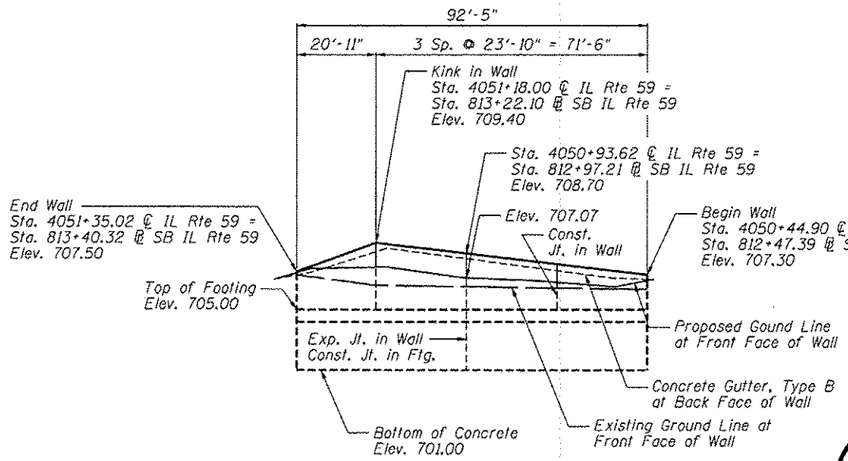
F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
338	(112 & 113) WRS-5	DUPAGE	963	647
		CONTRACT NO. 60I31		
	ILLINOIS	FED. AID PROJECT		

Bench Mark: DuPage County survey disk at north end of the west bridge wall, IL Rte 59 over Interstate Route 88. Elev. 731.43

Existing Structure: None



PROFILE GRADE
(along ℄ SB IL Route 59)



ELEVATION

GENERAL NOTES

1. Reinforcement bars designated (E) shall be epoxy coated.
2. Concrete sealer shall be applied to exposed surfaces of the front and back face and top of wall.

TOTAL BILL OF MATERIAL

ITEM	UNIT	TOTAL
Structure Excavation	Cu. Yd.	123
Concrete Structures	Cu. Yd.	24.4
Concrete Sealer	Sq. Ft.	258
Reinforcement Bars, Epoxy Coated	Pound	1,880
Granular Backfill for Structures	Cu. Yd.	31

INDEX OF SHEETS

STATE OF ILLINOIS
DEBORAH A. ZROKA
081-005152
LICENSED STRUCTURAL ENGINEER

Signature — Oct. 18, 2012 (Date)

November 30, 2014
Expires

DESIGN SPECIFICATIONS

2012 AASHTO LRFD Bridge Design Specifications 6th Edition with 2012 Interims

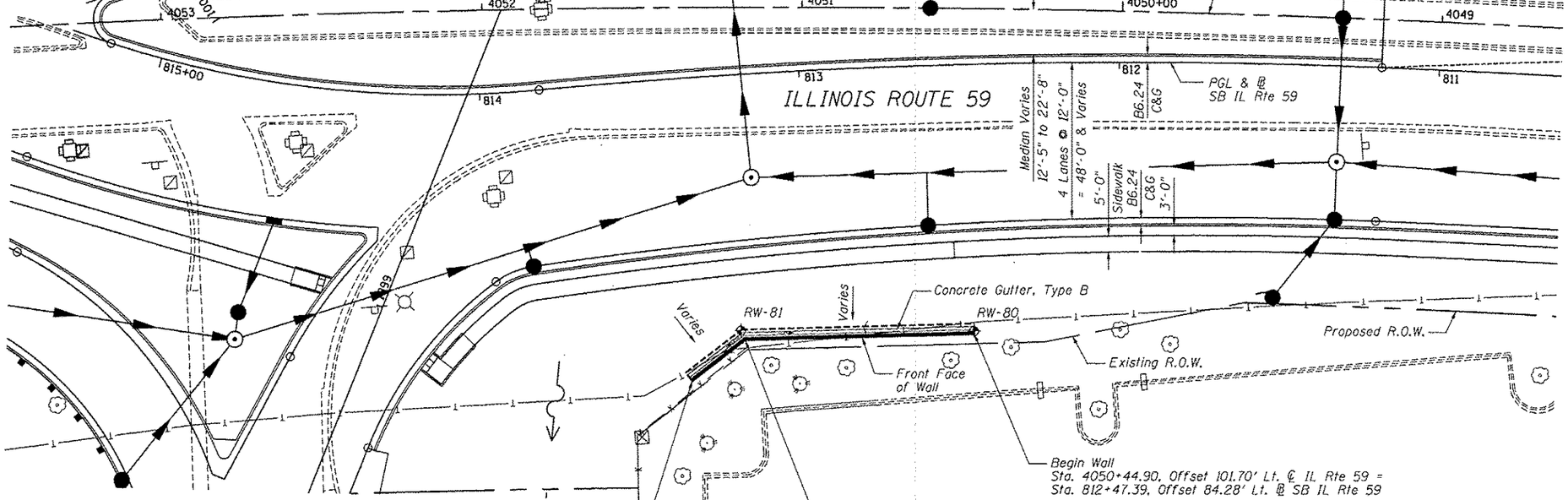
DESIGN STRESSES

FIELD UNITS

f'_c = 3,500 psi
f_y = 60,000 psi (reinforcement)

HORIZONTAL CURVE DATA

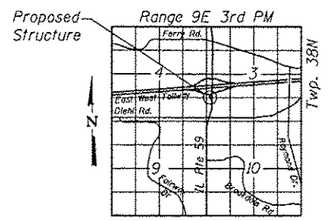
Proposed Curve PRIL59-8
PI Sta. = 4048+25.34
Δ = 14° 25' 49" (LT)
D = 1° 14' 59"
R = 4,584.55'
T = 580.39'
L = 1,154.64'
E = 36.59'
P.C. Sta. = 4042+44.95
P.T. Sta. = 4053+99.58



PLAN

Notes:
Offsets are measured to the front face of the wall.

Existing utilitites including telephone to be adjusted or relocated as required.



LOCATION SKETCH

GENERAL PLAN
IL RTE 59 FAP RTE 338
SECTION (112 & 113) WRS-5
DUPAGE COUNTY
STA. 4050+44.90 TO STA. 4051+35.02
SN 022-W063

ZROKA engineering — Zroka Engineering, P.C., 4216 North Hermitage, Chicago, IL 60613	USER NAME = SAW	DESIGNED - LAS	REVISED -	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	GENERAL PLAN STRUCTURE NUMBER 022-W063
		CHECKED - DAZ	REVISED -		
	PLOT SCALE = 40.00 ' / IN.	DRAWN - SAW	REVISED -		SHEET NO. SB-1 OF SB-4 SHEETS
	PLOT DATE = 10/10/2012	CHECKED - JLA	REVISED -		

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
338/IL 59	(112 & 113) WRS-5	DUPAGE	963	648
		CONTRACT NO. 60131		
		ILLINOIS FED. AID PROJECT		

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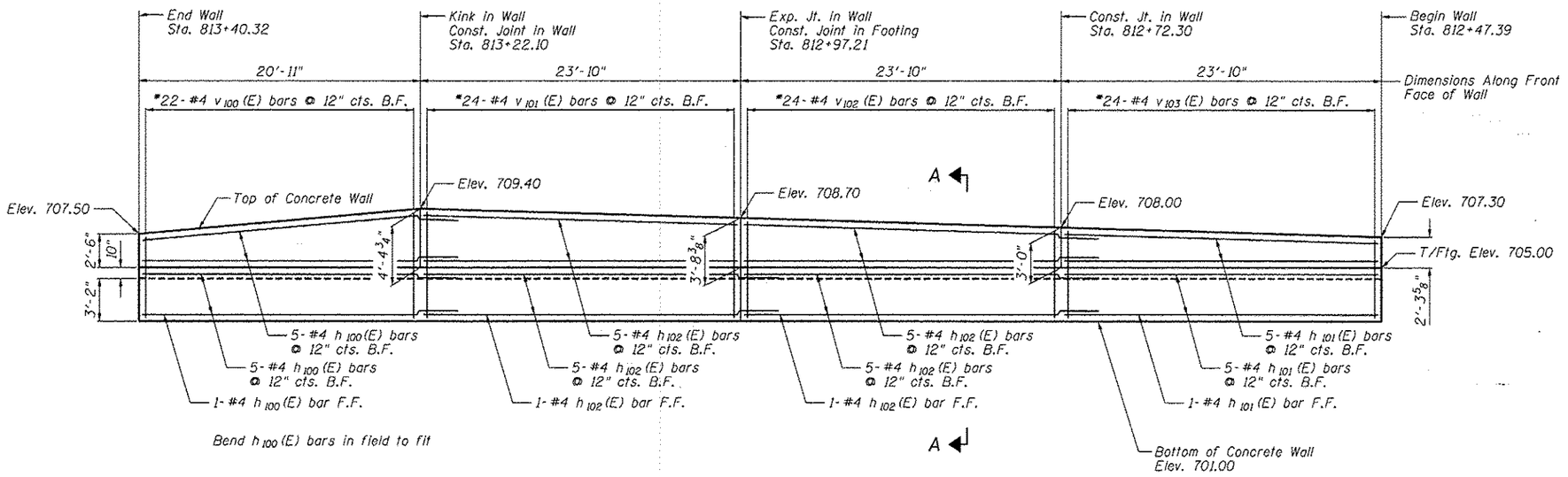
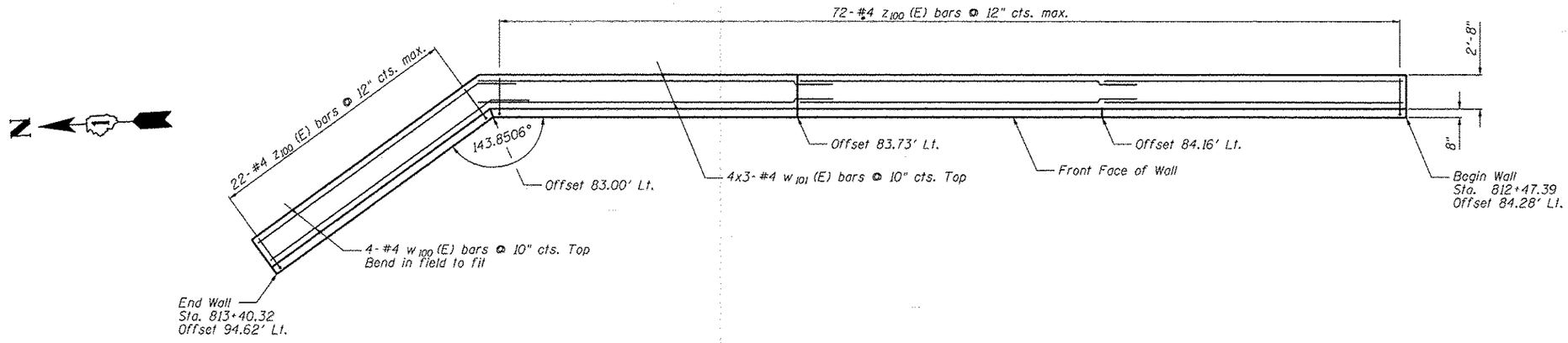


ELEVATION



PLAN

Notes:

Minimum lap for #4 bar is 2'-11".

Bars indicated thus: 4x3-#4 etc. indicates 4 lines of bars with 3 lengths per line.

* Signifies cut bar. Order per length on Bill of Material. Cut as shown in Cutting Diagram.

See Sheet SB-3 for Section A-A, Details and Bill of Material.

WALL PLAN AND ELEVATION
SN 022-W063

FILE NAME = ...\60131-W063-022-WallPlanElev.dgn

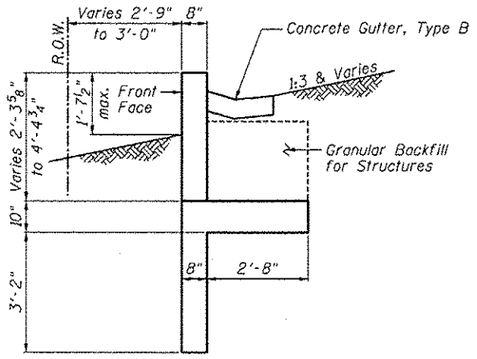
ZROKA engineering
Zroka Engineering, P.C.
4216 North Hermitage
Chicago, IL 60613

USER NAME = SAW	DESIGNED - LAS	REVISED -
	CHECKED - DAZ	REVISED -
PLOT SCALE = 10.0000 ' / IN.	DRAWN - SAW	REVISED -
PLOT DATE = 10/9/2012	CHECKED - JLA	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

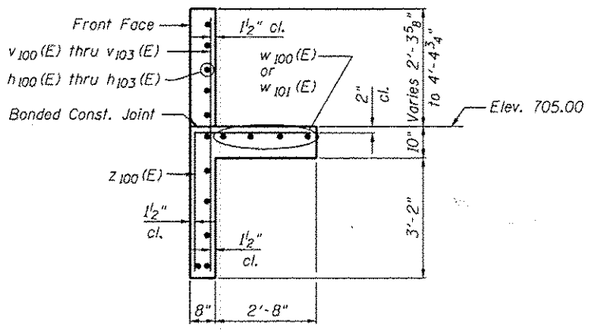
WALL PLAN AND ELEVATION
STRUCTURE NUMBER 022-W063
SHEET NO. SB-2 OF SB-4 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
338/IL 59	(112 & 113) WRS-5	DUPAGE	963	649
		CONTRACT NO. 60131		
	ILLINOIS FED. AID PROJECT			



TYPICAL SECTION

Sta. 812+47.39 to Sta. 813+40.32



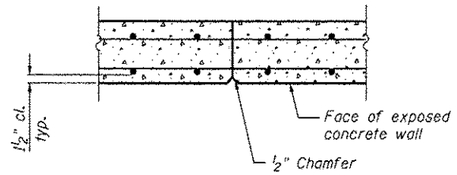
SECTION A-A

Maximum Soil Bearing Pressure = 1,800 psf

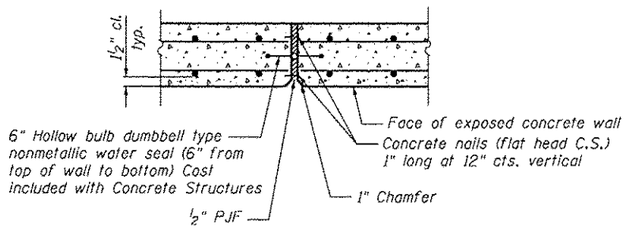
BILL OF MATERIAL

Bar	No.	Size	Length	Shape
h 100 (E)	11	#4	23'-10"	——
h 101 (E)	11	#4	23'-6"	——
h 102 (E)	22	#4	26'-9"	——
v 100 (E)	11	#4	14'-3"	——
v 101 (E)	12	#4	15'-5"	——
v 102 (E)	12	#4	14'-0"	——
v 103 (E)	12	#4	12'-7"	——
w 100 (E)	4	#4	24'-6"	——
w 101 (E)	12	#4	26'-2"	——
z 100 (E)	94	#4	6'-9"	⌐

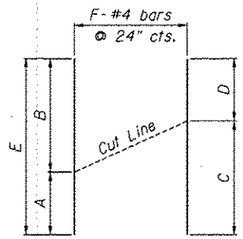
Item	Unit	Quantity
Concrete Structures	Cu. Yd.	24.4
Reinforcement Bars, Epoxy Coated	Pound	1,880
Granular Backfill for Structures	Cu. Yd.	31



CONSTRUCTION JOINT DETAIL

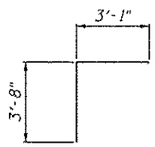


EXPANSION JOINT DETAIL



CUTTING DIAGRAM

Bar	A	B	C	D	E	F
v 100 (E)	6'-2"	8'-1"	7'-1"	7'-2"	14'-3"	11
v 101 (E)	8'-1"	7'-4"	7'-9"	7'-8"	15'-5"	12
v 102 (E)	7'-4"	6'-8"	7'-0"	7'-0"	14'-0"	12
v 103 (E)	6'-8"	5'-11"	6'-4"	6'-3"	12'-7"	12



BAR z 100 (E)

WALL SECTION AND DETAILS
SN 022-W063

FILE NAME = ...\60131-w063-033-Details.dgn

ZROKA engineering — Zroka Engineering, P.C., 4216 North Hermitage, Chicago, IL 60613	USER NAME = SAW	DESIGNED - LAS	REVISED -	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	WALL SECTION AND DETAILS STRUCTURE NUMBER 022-W063	F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
		CHECKED - DAZ	REVISED -			338/IL 59	(112 & 113) WRS-5	DUPAGE	963	650
	PLOT SCALE = 4.00 ' / IN.	DRAWN - SAW	REVISED -					CONTRACT NO. 60131		
	PLOT DATE = 10/9/2012	CHECKED - JLA	REVISED -		SHEET NO. 58-3 OF 58-4 SHEETS		ILLINOIS FED. AID PROJECT			

BORING LOG RW-80

Geo Services, Inc. — Geotechnical, Environmental & Civil Engineering, 805 Amherst Court, Suite 204, Naperville, Illinois 60565, (630) 355-2838

SOIL BORING LOG

PAGE 1 of 1
DATE 4/23/2012
LOGGED BY RJ
GSI JOB No. 09173

ROUTE IL Route 59 (FAP 338) DESCRIPTION Illinois Route 59-Aurora Avenue/New York Street To Ferry Road
SECTION (112 & 113) WRS-5 LOCATION SEC. 3, 9-10, 15-16, 21-22 TWP. 38N, RNG. 9E, Naperville Township
COUNTY DuPage DRILLING METHOD Hollow Stem Auger HAMMER TYPE CME Automatic

STRUCT. NO. 022-W063
Station: 4050+44.90 to 4051+35.02
BORING NO. **RW-80**
Station: 4050+42 IL RTE-59
Offset: 116.4' Left
Ground Surface Elev. 702.9

Surface Water Elev. n/a
Stream Bed Elev. n/a
Groundwater Elevation:
First Encounter 692.9
Upon Completion
After ___ Hrs.

Description	Bottom Elev.	DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)
4.0" TOPSOIL-dark brown to black	702.5		AS	–	26
SILTY CLAY-dark brown & gray-stiff (A-6) Wet			3 / 4 / 5	1.60	*99* / 26
	697.4	-5	2 / 3 / 3	1.48	*97* / 26
CLAY-brown & gray-very stiff (A-6)	694.9		3 / 4 / 5	2.25B	*113* / 18
SILTY LOAM-brown & gray-medium dense (A-4)		-10 (▼)	6 / 11 / 11	NP	17
	689.9		6 / 11 / 12	NP	16
CLAY-gray-very stiff (A-6)		-15	3 / 4 / 6	2.8B	*120* / 15
			4 / 5 / 7	2.5B	*112* / 19
		-20	4 / 5 / 6	3.5B	*110* / 20
CLAY-gray-very stiff (A-6)	682.4				
CLAY LOAM-gray-very stiff to hard (A-6)			3 / 4 / 6	2.7B	*130* / 11
		-25	6 / 9 / 12	4.0P	11
	674.9		7 / 10 / 14	5.0B	*130* / 10
SAND-gray-medium dense to dense (A-3)		-30	16 / 13 / 14	NP	19
	667.9	-35	10 / 14 / 18	NP	14
End Of Boring @ -35.0' Hollow Stem Augers CME Automatic Hammer		-40			

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B-Bulge, S-Shear, P-Penetrometer) ST-Shelby Tube Sample VS-Vane Shear Test
The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206) The Unit Dry Weight (pcf) is noted in italics above moist (%)
NR-No Recovery

BORING LOG RW-81

Geo Services, Inc. — Geotechnical, Environmental & Civil Engineering, 805 Amherst Court, Suite 204, Naperville, Illinois 60565, (630) 355-2838

SOIL BORING LOG

PAGE 1 of 1
DATE 4/23/2012
LOGGED BY RJ
GSI JOB No. 09173

ROUTE IL Route 59 (FAP 338) DESCRIPTION Illinois Route 59-Aurora Avenue/New York Street To Ferry Road
SECTION (112 & 113) WRS-5 LOCATION SEC. 3, 9-10, 15-16, 21-22 TWP. 38N, RNG. 9E, Naperville Township
COUNTY DuPage DRILLING METHOD Hollow Stem Auger HAMMER TYPE CME Automatic

STRUCT. NO. 022-W063
Station: 4050+44.90 to 4051+35.02
BORING NO. **RW-81**
Station: 4051+25 IL RTE-59
Offset: 132.9' Left
Ground Surface Elev. 704.4

Surface Water Elev. n/a
Stream Bed Elev. n/a
Groundwater Elevation:
First Encounter 694.4
Upon Completion
After ___ Hrs.

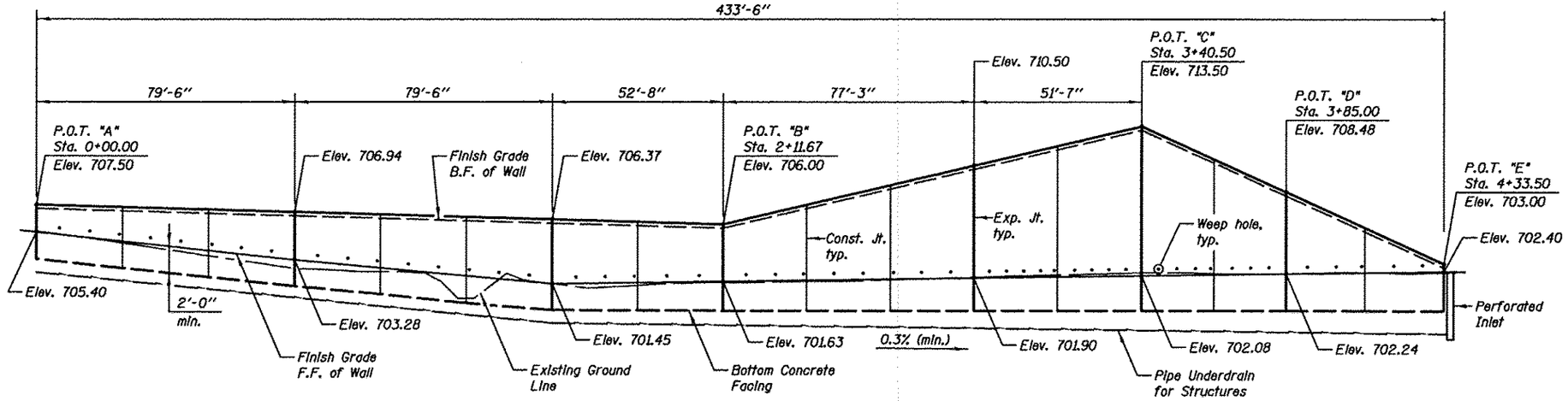
Description	Bottom Elev.	DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)
6.0" TOPSOIL-black	703.9		AS	–	28
SILTY CLAY LOAM-brown & gray-medium dense (A-4)	701.4		7 / 8 / 7	–	12
CLAY-brown & gray-very stiff (A-6)	698.9	-5	5 / 6 / 7	2.3B	*112* / 19
SANDY LOAM-brown-medium dense (A-2)	696.4		5 / 8 / 10	NP	18
SAND & GRAVEL-brown-medium dense (A-1)	693.9	-10 (▼)	6 / 8 / 11	NP	15
CLAY-gray-stiff to very stiff (A-6)			5 / 7 / 8	2.4B	*117* / 16
		-15	6 / 8 / 9	1.8B	*116* / 17
			4 / 4 / 7	2.2B	*108* / 21
		-20	3 / 4 / 5	1.6B	*106* / 21
CLAY-gray-stiff to very stiff (A-6)	681.4		6 / 8 / 10	3.75P	18
CLAY LOAM-gray-hard (A-6)		-25	7 / 9 / 11	4.0P	11
	676.4		11 / 13 / 15	5.8B	*133* / 10
SAND & GRAVEL-gray-dense (A-1)	672.4	-30	12 / 16 / 18	NP	6
SAND-gray-dense (A-3)	669.4	-35	13 / 16 / 18	NP	20
End Of Boring @ -35.0' Hollow Stem Augers CME Automatic Hammer		-40			

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B-Bulge, S-Shear, P-Penetrometer) ST-Shelby Tube Sample VS-Vane Shear Test
The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206) The Unit Dry Weight (pcf) is noted in italics above moist (%)
NR-No Recovery

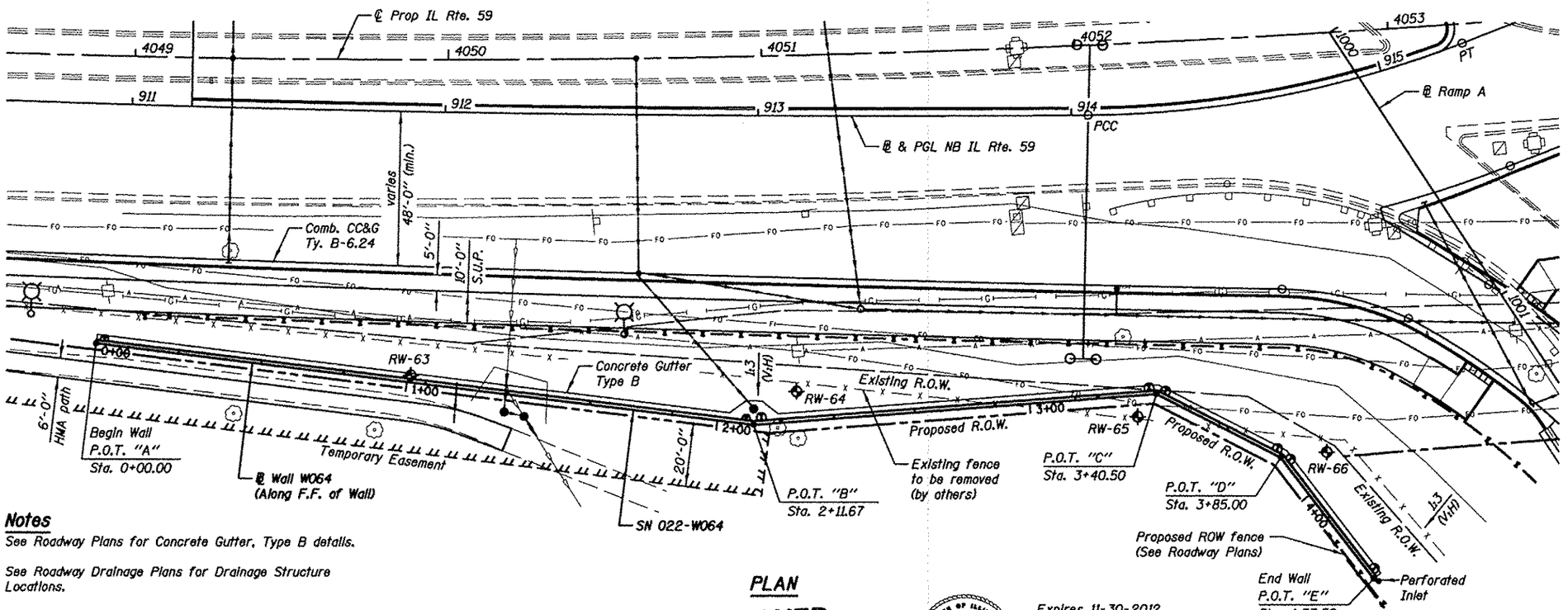
SOIL BORING LOGS
SN 022-W063

Bench Mark: BM #224 4059+52, 34' LT
DuPage County survey disk at north end of the west bridge wall,
IL Rte 59 over Interstate Route 88, Elev. 731.43

Existing Structure: None



ELEVATION



Notes

See Roadway Plans for Concrete Gutter, Type B details.

See Roadway Drainage Plans for Drainage Structure Locations.

Existing utilities, including gas, fiber optic and electric aerial lines to be adjusted or relocated as required.

Piles may need to be spliced to avoid existing or relocated aerial lines. See Sheet SC-08 for pile splice detail. Cost of pile splicing shall be included in the cost of Furnishing Soldier Piles.

Legend

- Soil Borings
- F.F. Front Face
- B.F. Back Face
- S.U.P. Shared Use Path

PLAN

APPROVED
For Structural Adequacy Only

Engineer of Bridges & Structures

Expires 11-30-2012

Date: 10/15/2012

for drawings
SC-01 thru SC-10

INDEX OF DRAWINGS

CURVE DATA

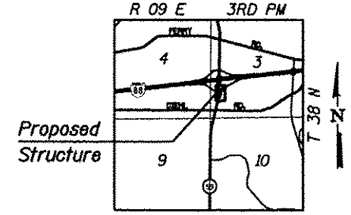
℄ NB IL Rte. 59 Curve 59INTNB-2	℄ NB IL Rte. 59 Curve 59INTNB-3
Δ = 2° 52' 51" (LT)	Δ = 20° 56' 44" (LT)
D = 0° 43' 15"	D = 17° 09' 16"
R = 7,947.84'	R = 334.00'
T = 199.84'	T = 61.74'
L = 399.60'	L = 122.10'
E = 2.51'	E = 5.66'
SE = Normal Crown	SE = Normal Crown
PC STA. 910+05.72	PC STA. 914+05.32
PT STA. 914+05.32	PT STA. 915+27.42
PI STA. 912+05.56	PI STA. 914+67.06

℄ Wall W064
(Offsets from ℄ NB IL Rte. 59 to F.F. of wall)
POT "A"
Sta. 0+00.00 - ℄ Wall W064 =
Sta. 910+90.92, 76.47' Rt. - ℄ NB IL Rte. 59
POT "B"
Sta. 2+11.67 - ℄ Wall W064 =
Sta. 912+99.17, 98.36' Rt. - ℄ NB IL Rte. 59
POT "C"
Sta. 3+40.50 - ℄ Wall W064 =
Sta. 914+21.95, 89.45' Rt. - ℄ NB IL Rte. 59
POT "D"
Sta. 3+85.00 - ℄ Wall W064 =
Sta. 914+50.66, 113.55' Rt. - ℄ NB IL Rte. 59
POT "E"
Sta. 4+33.50 - ℄ Wall W064 =
Sta. 914+66.86, 156.40' Rt. - ℄ NB IL Rte. 59

DESIGN STRESSES

FIELD UNITS

f'_c = 3,500 psi
f_y = 60,000 psi (reinforcement)
f_y = 50,000 psi (AASHTO M270 Gr. 50)



LOCATION SKETCH

DESIGN SPECIFICATIONS

2012 AASHTO LRFD Bridge Design Specifications
6th Edition, with 2012 Interim Revisions

GENERAL PLAN AND ELEVATION

ILLINOIS ROUTE 59 F.A.P. RTE. 338
SEC. (112 & 113) WRS-5
DUPAGE COUNTY
STA. 4048+90 TO STA. 4052+85
STRUCTURE NO. 022-W064

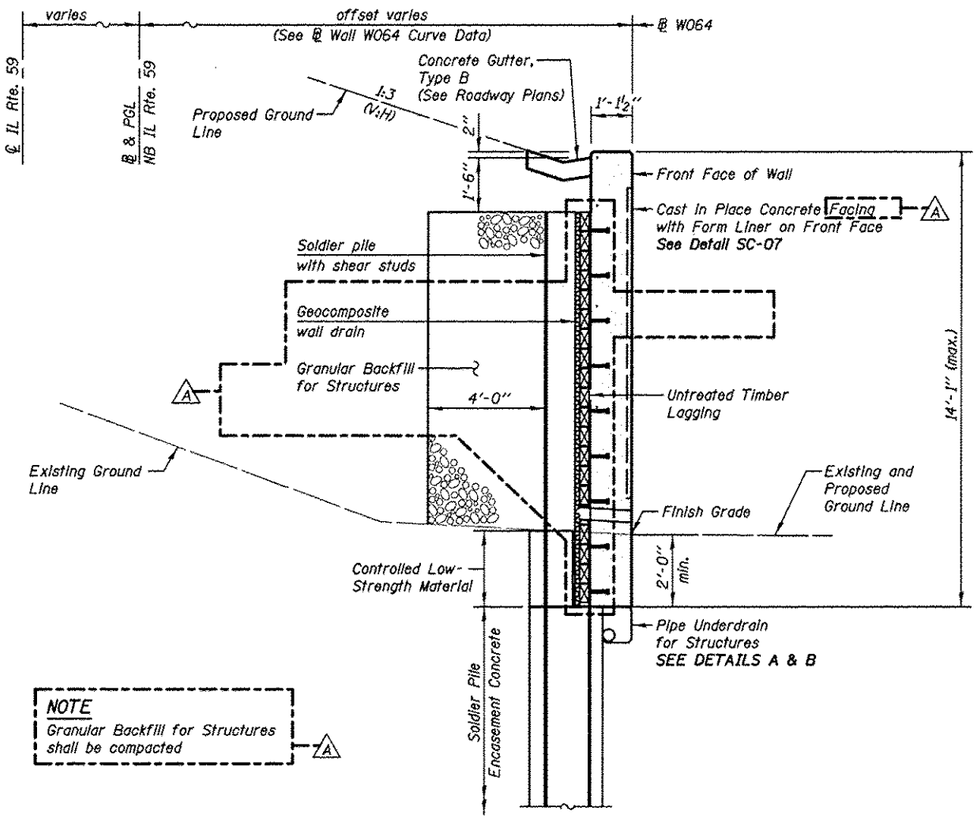
KNIGHT
Engineers & Architects

		DESIGNED - TB	REVISED
		CHECKED - WPM	REVISED
SCALE - NONE		DRAWN - TB	REVISED
DATE - 10/15/2012		CHECKED - WPM	REVISED

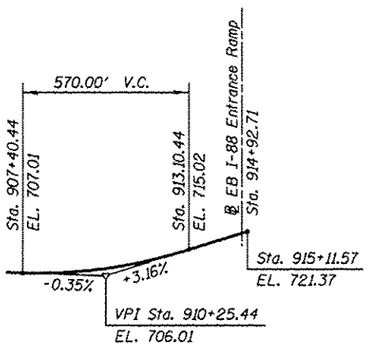
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

GENERAL PLAN AND ELEVATION
STRUCTURE NUMBER 022-W064
SHEET NO. SC-01 OF 10 SHEETS

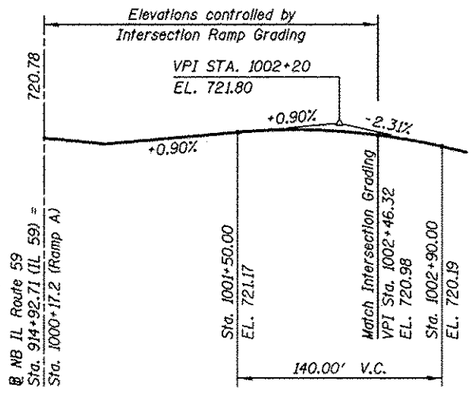
F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
338	(112 & 113) WRS-5	DUPAGE	963	652
		CONTRACT NO. 60131		
		ILLINOIS FED. AID PROJECT		



TYPICAL WALL SECTION
(For Details See Sheet SC-06)



℄ NB IL ROUTE 59 - PROPOSED PROFILE GRADE LINE



℄ RAMP A - PROPOSED PROFILE GRADE LINE

GENERAL NOTES

All structural steel shall conform to the requirements of AASHTO M 270 Grade 50 except as noted on plans.

Reinforcement bars designated (E) shall be epoxy coated.

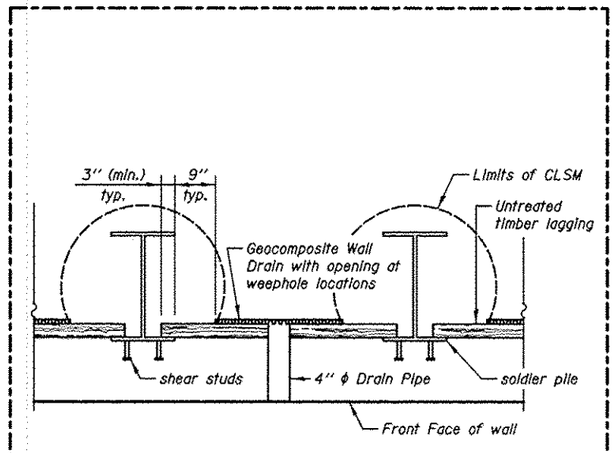
The Contractor is responsible for the design and performance of the timber lagging using no less than a 3 in. nominal rough-sawn thickness and timber with a minimum allowable bending stress of 1000 psi.

A

TOTAL BILL OF MATERIAL

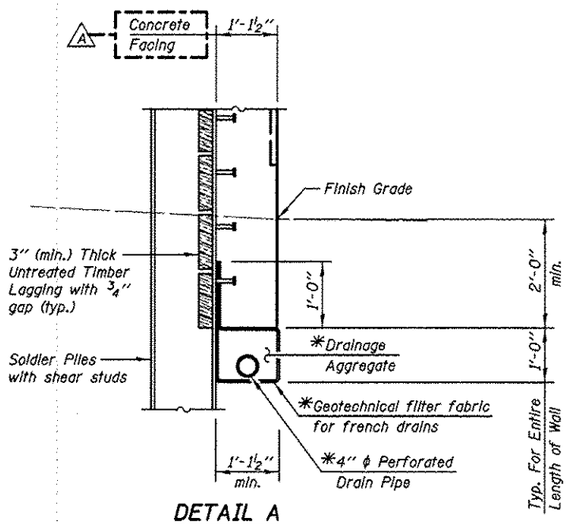
ITEM	UNIT	TOTAL
Structure Excavation	Cu. Yd.	115.0
Concrete Structures	Cu. Yd.	150.0
Form Liner Textured Surface	Sq. Ft.	1555.0
Stud Shear Connectors	Each	650
Reinforcement Bars, Epoxy Coated	Pound	13680
Geocomposite Wall Drain	Sq. Yd.	306.0
Untreated Timber Lagging	Sq. Ft.	2746.0
Furnishing Soldier Piles (HP Section)	Foot	546.0
Furnishing Soldier Piles (W Section)	Foot	1004.0
Pipe Underdrains for Structures 4"	Foot	489.0
Drilling And Setting Soldier Piles (In Soil)	Cu. Ft.	7620.0
Granular Backfill For Structures	Cu. Yd.	261.0

A

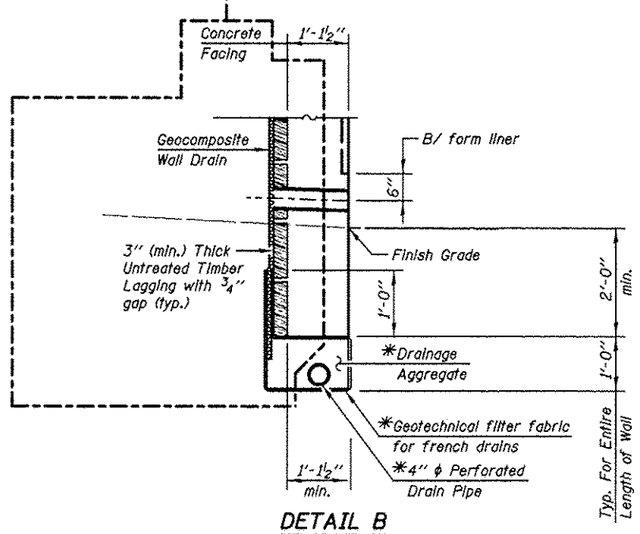


BEHIND WALL DRAINAGE DETAILS

A



DETAIL A
(At Soldier Piles)



DETAIL B
(Between Soldier Piles)

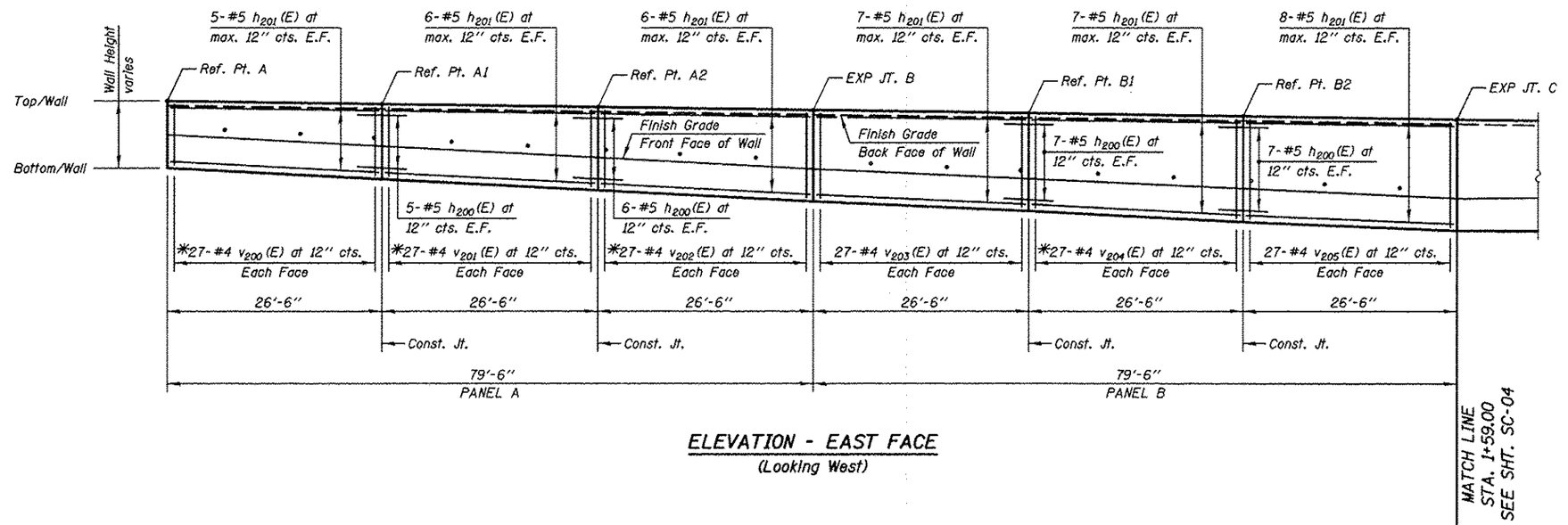
UNDERDRAIN DETAIL
*Cost Included with "Pipe Underdrains for Structures"

KNIGHT Engineers & Architects		DESIGNED - TB	REVISED A 12/17/2012 WPM	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION
		CHECKED - WPM	REVISED	
	SCALE - NONE	DRAWN - TB	REVISED	
	DATE - 10/15/2012	CHECKED - WPM	REVISED	

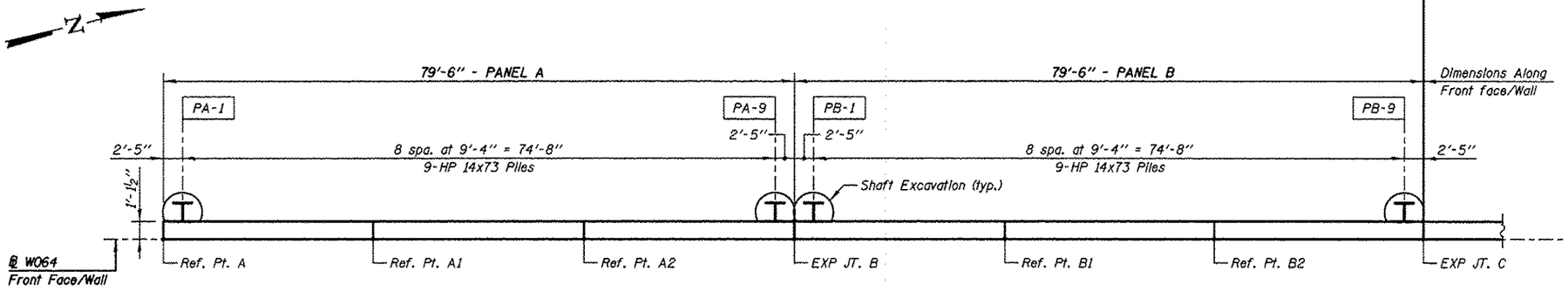
TOTAL BILL OF MATERIAL & MISCELLANEOUS DETAILS
STRUCTURE NUMBER 022-W064
SHEET NO. SC-02 OF 10 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
338	(112 & 113) WRS-5	DUPAGE	963	653
		CONTRACT NO. 60131		
	ILLINOIS	FED. AID PROJECT		

Note:
For Top/Wall Elevations, Bottom/Wall Elevations & Wall Height SEE TABLE.



ELEVATION - EAST FACE
(Looking West)



PLAN
(PANELS A & B)

PILE DATA

Pile No.	Top Elev.	Bottom Elev.	Length Ft.	No of Studs
PA-1	705.81	684.81	21.00	6
PA-2	705.75	684.75	21.00	6
PA-3	705.68	684.68	21.00	6
PA-4	705.61	683.61	22.00	6
PA-5	705.55	683.55	22.00	6
PA-6	705.49	683.49	22.00	6
PA-7	705.42	683.42	22.00	8
PA-8	705.35	683.35	22.00	8
PA-9	705.29	683.29	22.00	8
PB-1	705.25	682.25	23.00	8
PB-2	705.19	682.19	23.00	8
PB-3	705.12	682.12	23.00	8
PB-4	705.05	682.05	23.00	8
PB-5	704.99	681.99	23.00	8
PB-6	704.92	681.92	23.00	8
PB-7	704.85	681.85	23.00	8
PB-8	704.78	680.78	24.00	10
PB-9	704.72	680.72	24.00	10

SHAFT SIZES

Pile Size	Shaft Excavation Size
HP14	2'-0" (A)
W24	3'-0"

LEGEND
E.F. Each Face

Min Bar Laps
#5 Bars = 2'-5" (Horiz. Top Bars)

WALL JOINT LOCATIONS, HEIGHTS & ELEVATIONS

Location Ref. Points	Station on @ W064	Wall Height	Top/Wall Elevation	Bottom/Wall Elevation	Finish Grade Elev.	Bott/Liner Elev.**
Begin Wall - A	0+00.00	4'-2"	707.50	703.33	705.40	706.40
C.J. - A1	0+26.50	4'-8"	707.31	702.64	704.69	705.69
C.J. - A2	0+53.00	5'-2"	707.13	701.96	703.99	704.99
Exp. Jt. - B	0+79.50	5'-8"	706.94	701.27	703.28	704.28
C.J. - B1	1+06.00	6'-1"	706.75	700.67	702.67	703.67
C.J. - B2	1+32.50	6'-7"	706.56	699.98	702.06	703.06
Exp. Jt. - C	1+59.00	6'-11"	706.37	699.45	701.45	702.45

Notes
All Dimensions are along Front Face of Wall.

For Typical Sections & Bill of Material, SEE Sheet SC-06

*See Bar Cutting Diagram Sheet SC-06

**Bottom of Form Liner Elevations are 1'-0" (1.0') higher than Finish Grade Elevations.

KNIGHT Engineers & Architects

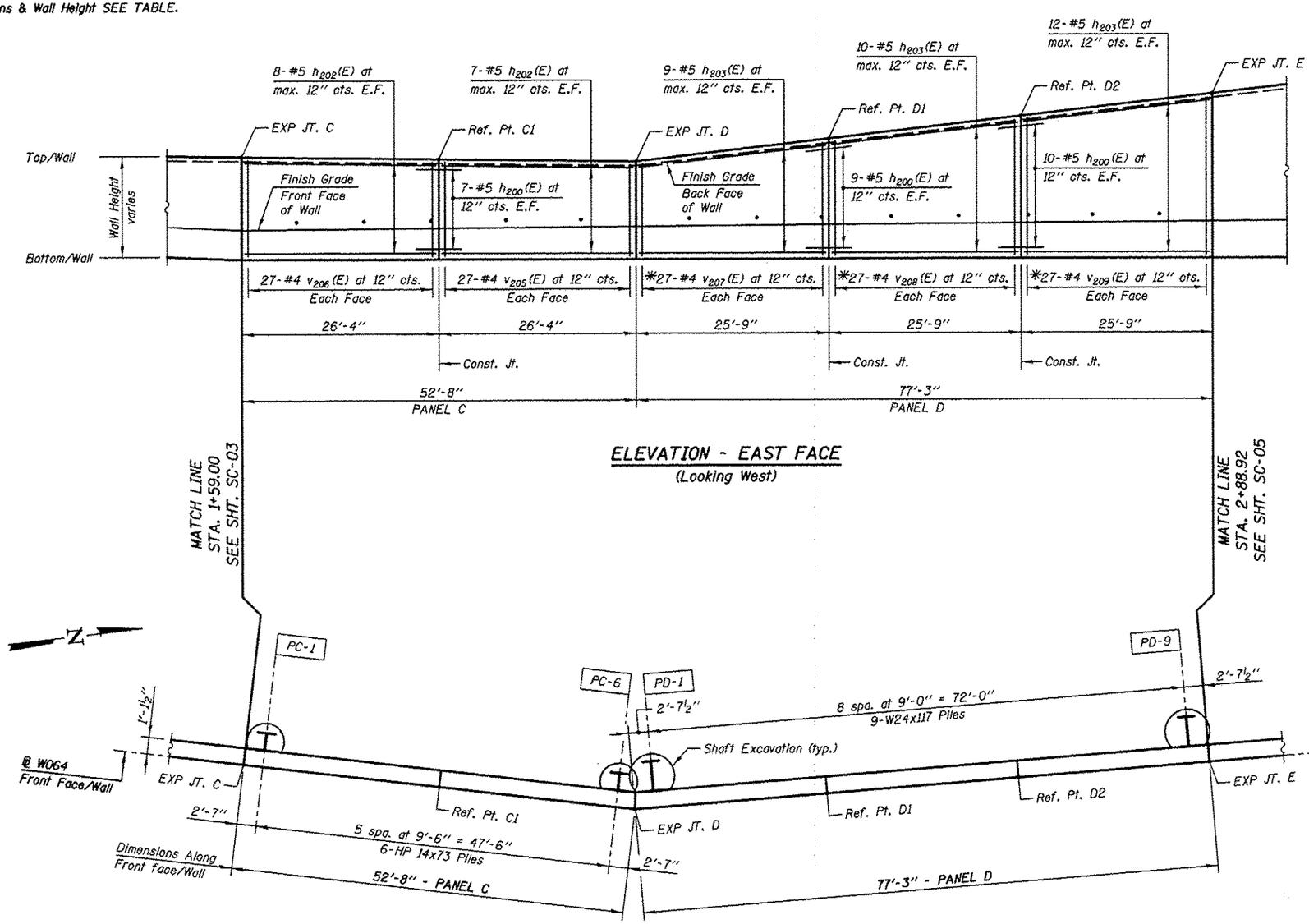
		DESIGNED - TB	REVISED (A) 12/17/2012 WPM
		CHECKED - WPM	REVISED
SCALE - NONE		DRAWN - TB	REVISED
DATE - 10/15/2012		CHECKED - WPM	REVISED

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

PLAN & ELEVATION – PANELS A & B
STRUCTURE NUMBER 022-W064
SHEET NO. SC-03 OF 10 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
338	(112 & 113) WRS-5	DUPAGE	963	654
		CONTRACT NO. 60I31		
	ILLINOIS FED. AID PROJECT			

Note:
For Top/Wall Elevations, Bottom/Wall Elevations & Wall Height SEE TABLE.



ELEVATION - EAST FACE
(Looking West)

PLAN
(PANELS C & D)

PILE DATA:

Pile No.	Top Elev.	Bottom Elev.	Length Ft.	No of Studs
PC-1	704.68	680.68	24.00	10
PC-2	704.62	680.62	24.00	10
PC-3	704.55	680.55	24.00	10
PC-4	704.49	680.49	24.00	10
PC-5	704.42	681.42	23.00	10
PC-6	704.35	681.35	23.00	10
PD-1	704.48	681.48	23.00	10
PD-2	705.01	681.01	24.00	10
PD-3	705.53	680.53	25.00	10
PD-4	706.06	680.06	26.00	12
PD-5	706.58	679.58	27.00	12
PD-6	707.10	679.10	28.00	12
PD-7	707.63	677.63	30.00	14
PD-8	708.15	677.15	31.00	14
PD-9	708.68	675.68	33.00	14

SHAFT SIZES

Pile Size	Shaft Excavation Size
HP14	2'-0"
W24	3'-0"

Notes
All Dimensions are along Front Face of Wall.

For Typical Sections & Bill of Material, SEE Sheet SC-06

*See Bar Cutting Diagram Sheet SC-06

**Bottom of Form Liner Elevations are 1'-0" (1.0') higher than Finish Grade Elevations.

LEGEND
E.F. Each Face

Min Bar Laps
#5 Bars = 2'-5" (Horiz. Top Bars)

WALL JOINT LOCATIONS, HEIGHTS & ELEVATIONS

Location Ref. Points	Station on @ W064	Wall Height	Top/Wall Elevation	Bottom/Wall Elevation	Finish Grade Elev.	Bott/Liner Elev.**
Exp. Jt. - C	1+59.00	6'-11"	706.37	699.45	701.45	702.45
C.J. - C1	1+85.33	6'-9"	706.19	699.44	701.54	702.54
Exp. Jt. - D	2+11.67	6'-7"	706.00	699.42	701.63	702.63
C.J. - D1	2+37.42	8'-1"	707.50	699.42	701.72	702.72
C.J. - D2	2+63.17	9'-7"	709.00	699.42	701.81	702.81
Exp. Jt. - E	2+88.92	11'-1"	710.50	699.42	701.90	702.90

KNIGHT Engineers & Architects

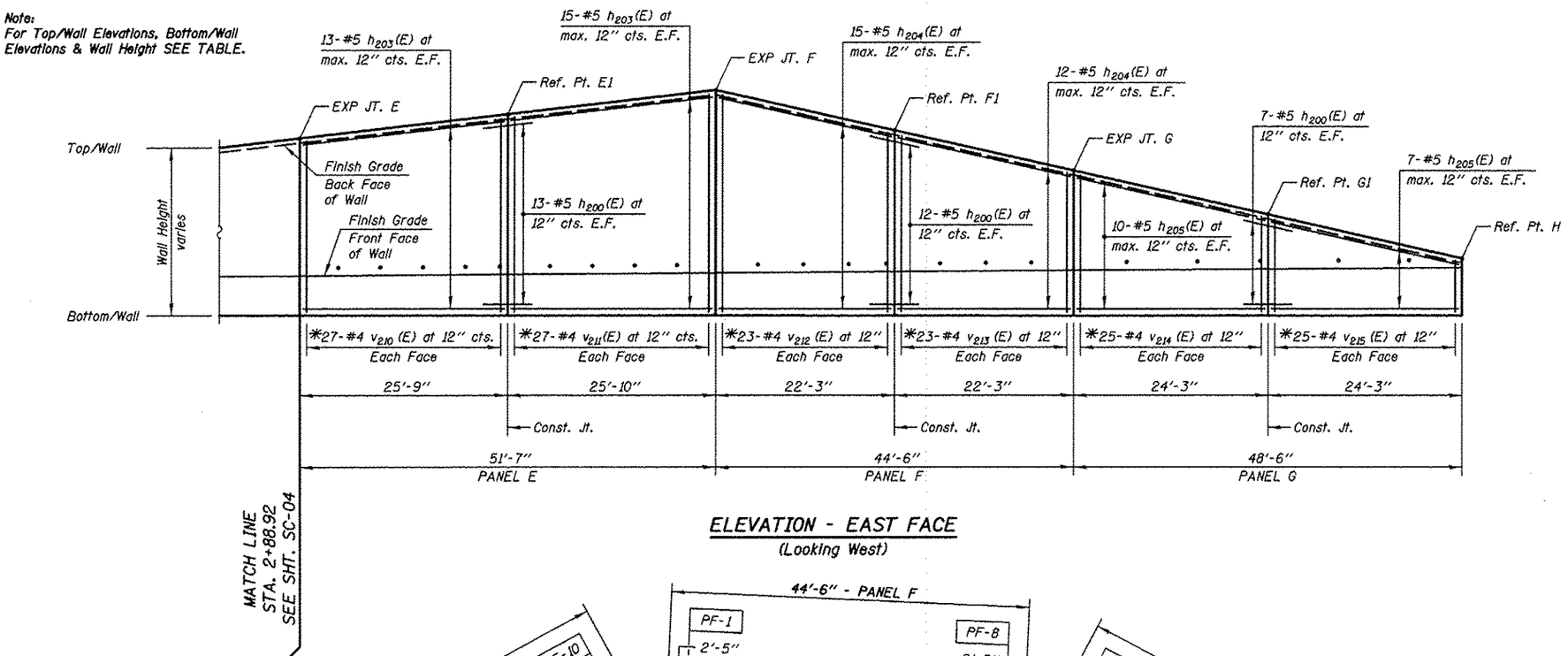
		DESIGNED - TB	REVISED A 12/17/2012 WPM
		CHECKED - WPM	REVISED
SCALE - NONE		DRAWN - TB	REVISED
DATE - 10/15/2012		CHECKED - WPM	REVISED

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

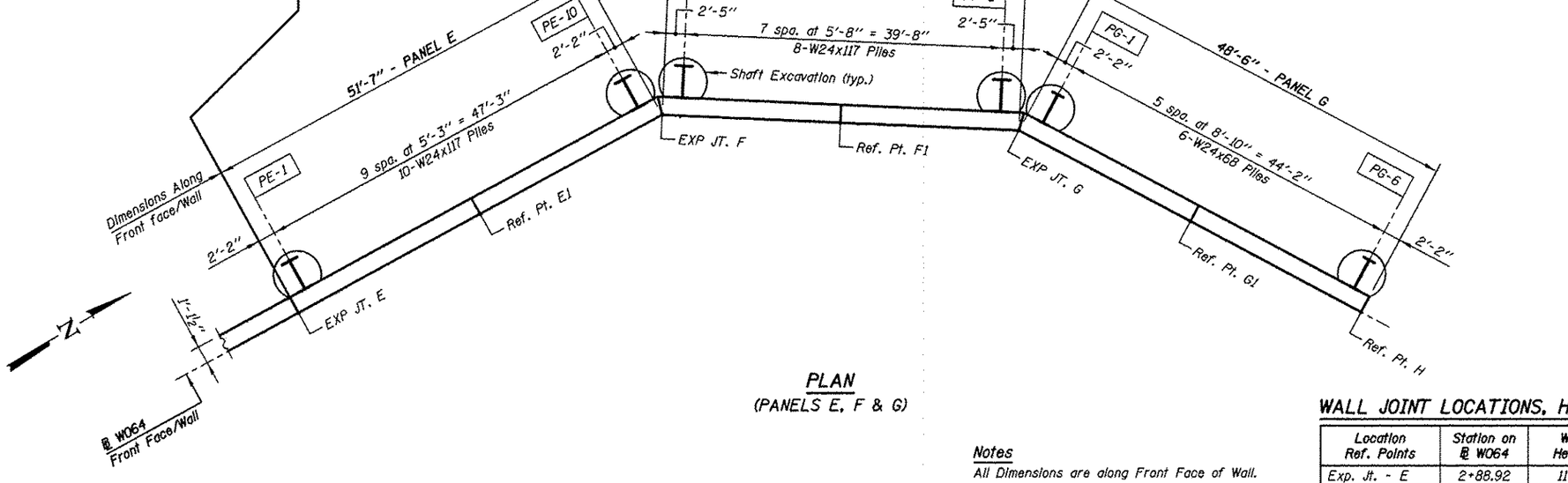
PLAN & ELEVATION – PANELS C & D
STRUCTURE NUMBER 022-W064
SHEET NO. SC-04 OF 10 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
338	(112 & 113) WRS-5	DUPAGE	963	655
		CONTRACT NO. 60I31		
	ILLINOIS	FED. AID PROJECT		

Note:
For Top/Wall Elevations, Bottom/Wall Elevations & Wall Height SEE TABLE.



ELEVATION - EAST FACE
(Looking West)



PLAN
(PANELS E, F & G)

PILE DATA:

Pile No.	Top Elev.	Bottom Elev.	Length Ft.	No of Studs
PE-1	708.96	675.96	33.00	16
PE-2	709.26	675.26	34.00	16
PE-3	709.57	675.57	34.00	16
PE-4	709.87	674.87	35.00	16
PE-5	710.18	674.18	36.00	16
PE-6	710.48	674.48	36.00	18
PE-7	710.79	673.79	37.00	18
PE-8	711.09	673.09	38.00	18
PE-9	711.40	673.40	38.00	18
PE-10	711.70	672.70	39.00	18
PF-1	711.56	672.56	39.00	18
PF-2	710.92	673.92	37.00	18
PF-3	710.28	674.28	36.00	16
PF-4	709.64	675.64	34.00	16
PF-5	709.00	676.00	33.00	16
PF-6	708.36	677.36	31.00	14
PF-7	707.72	678.72	29.00	14
PF-8	707.08	679.08	28.00	12
PG-1	706.57	679.57	27.00	12
PG-2	705.57	681.57	24.00	10
PG-3	704.57	682.57	22.00	10
PG-4	703.57	683.57	20.00	8
PG-5	702.57	683.57	19.00	6
PG-6	701.57	683.57	18.00	6

SHAFT SIZES

Pile Size	Shaft Excavation Size
HP14	2'-0" (A)
W24	3'-0"

LEGEND
E.F. Each Face

Min Bar Laps
#5 Bars = 2'-5" (Horiz. Top Bars)

WALL JOINT LOCATIONS, HEIGHTS & ELEVATIONS

Location Ref. Points	Station on ℄ W064	Wall Height	Top/Wall Elevation	Bottom/Wall Elevation	Finish Grade Elev.	Bott/Liner Elev.**
Exp. Jt. - E	2+88.92	11'-1"	710.50	699.42	701.90	702.90
C.J. - E1	3+14.67	12'-7"	712.00	699.42	701.99	702.99
Exp. Jt. - F	3+40.50	14'-1"	713.50	699.42	702.08	703.08
C.J. - F1	3+62.75	11'-7"	710.99	699.41	702.16	703.16
Exp. Jt. - G	3+85.00	9'-1"	708.48	699.40	702.24	703.24
C.J. - G1	4+09.25	6'-4"	705.74	699.41	702.32	703.32
End Wall - H	4+33.50	3'-7"	703.00	699.42	702.40	703.40

Notes
All Dimensions are along Front Face of Wall.

For Typical Sections & Bill of Material, SEE Sheet SC-06

*See Bar Cutting Diagram Sheet SC-06

**Bottom of Form Liner Elevations are 1'-0" (1.0') higher than Finish Grade Elevations.

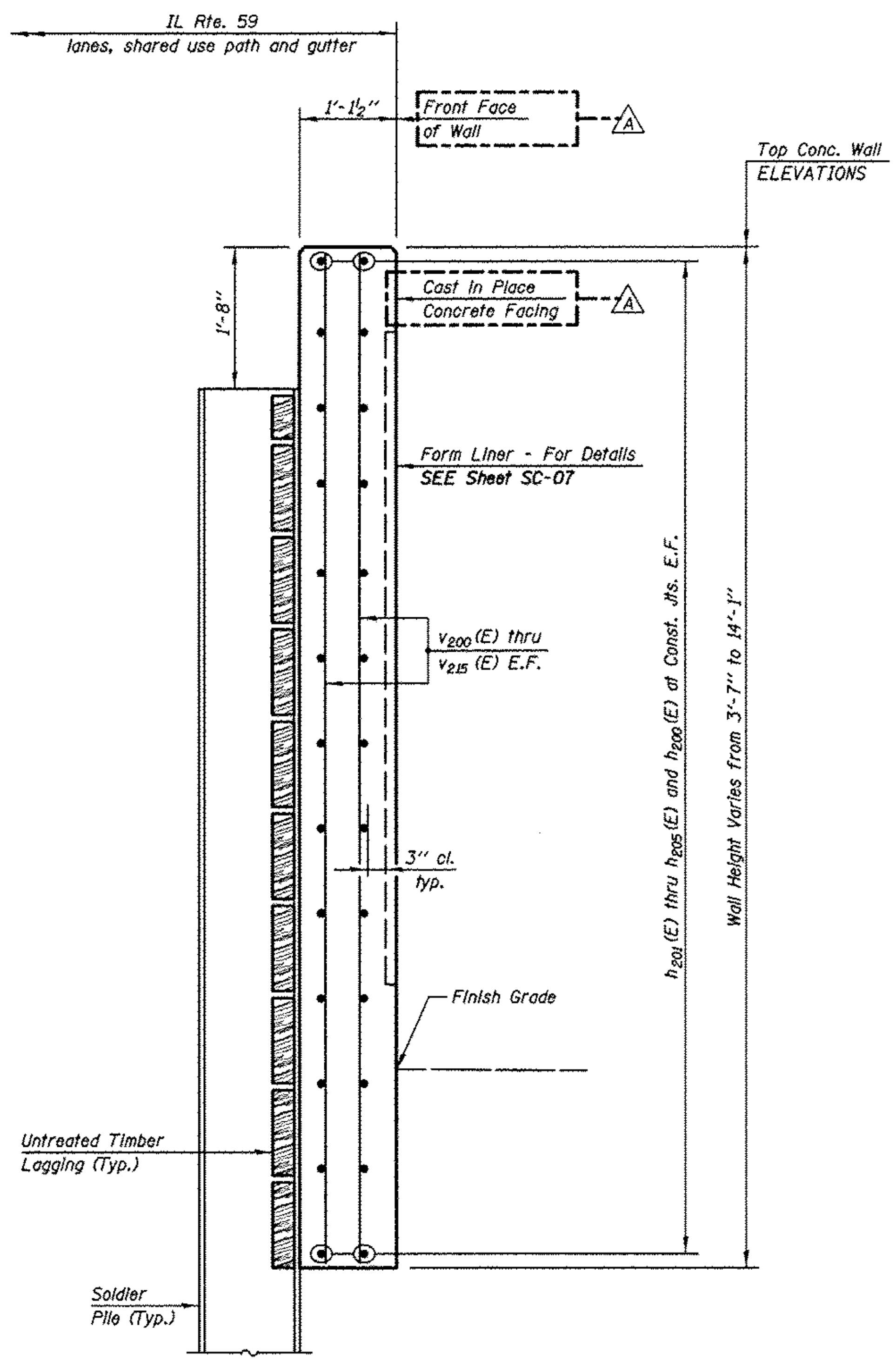
KNIGHT
Engineers & Architects

		DESIGNED - TB	REVISED (A) 12/17/2012 WPM
		CHECKED - WPM	REVISED
SCALE - NONE		DRAWN - TB	REVISED
DATE - 10/15/2012		CHECKED - WPM	REVISED

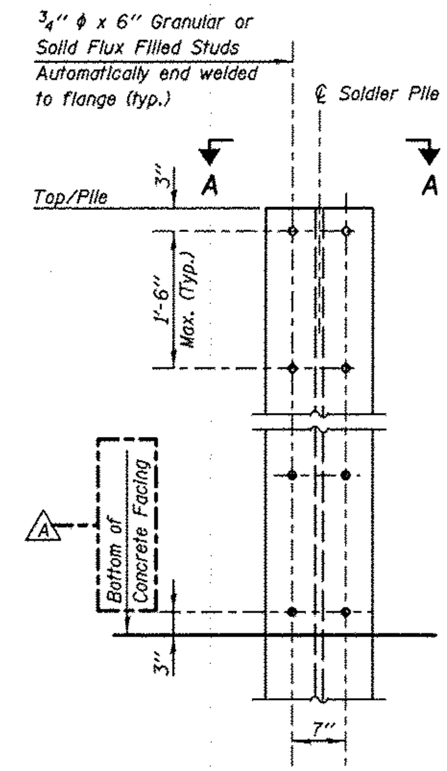
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

PLAN & ELEVATION - PANELS E, F & G
STRUCTURE NUMBER 022-W064
SHEET NO. SC-05 OF 10 SHEETS

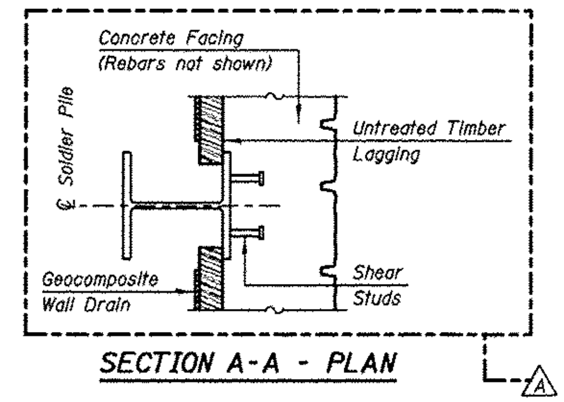
F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
338	(112 & 113) WRS-5	DUPAGE	963	656
		CONTRACT NO. 60131		
	ILLINOIS FED. AID PROJECT			



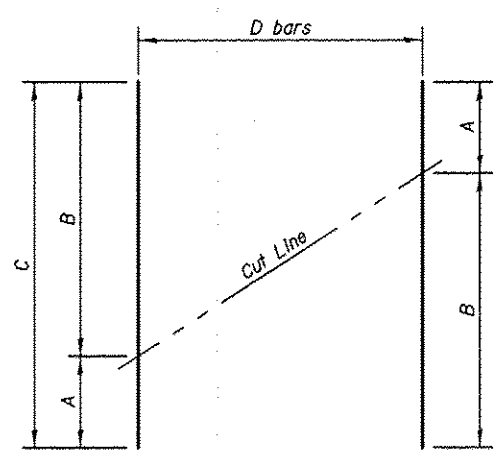
TYPICAL WALL SECTION



STUD SHEAR CONNECTORS LAYOUT



SECTION A-A - PLAN



BAR CUTTING DIAGRAM

Order bars full length. Cut as shown and use remainder of bars in opposite face.

BAR	A	B	C	D
v200(E)	3'-10"	4'-4"	8'-2"	27
v201(E)	4'-4"	4'-10"	9'-2"	27
v202(E)	4'-10"	5'-4"	10'-2"	27
v204(E)	5'-9"	6'-3"	12'-0"	27
v207(E)	6'-3"	7'-9"	14'-0"	27
v208(E)	7'-9"	9'-3"	17'-0"	27
v209(E)	9'-3"	10'-9"	20'-0"	27
v210(E)	10'-9"	12'-3"	23'-0"	27
v211(E)	12'-3"	13'-9"	26'-0"	27
v212(E)	13'-9"	11'-3"	25'-0"	23
v213(E)	11'-3"	8'-9"	20'-0"	23
v214(E)	8'-9"	6'-0"	14'-9"	25
v215(E)	6'-0"	3'-3"	9'-3"	25

BILL OF MATERIAL

BAR	NO.	SIZE	LENGTH	SHAPE
h200(E)	166	#5	6'-0"	——
h201(E)	78	#5	26'-2"	——
h202(E)	30	#5	26'-0"	——
h203(E)	118	#5	25'-5"	——
h204(E)	54	#5	21'-11"	——
h205(E)	34	#5	23'-11"	——
v200(E)	27	#4	8'-2"	——
v201(E)	27	#4	9'-2"	——
v202(E)	27	#4	10'-2"	——
v203(E)	54	#4	5'-4"	——
v204(E)	27	#4	12'-0"	——
v205(E)	108	#4	6'-3"	——
v206(E)	54	#4	6'-5"	——
v207(E)	27	#4	14'-0"	——
v208(E)	27	#4	17'-0"	——
v209(E)	27	#4	20'-0"	——
v210(E)	27	#4	23'-0"	——
v211(E)	27	#4	26'-0"	——
v212(E)	23	#4	25'-0"	——
v213(E)	23	#4	20'-0"	——
v214(E)	25	#4	14'-9"	——
v215(E)	25	#4	9'-3"	——

Item	Unit	Quantity
Structure Excavation	Cu. Yd.	115.0
Concrete Structures	Cu. Yd.	150.0
Form Liner Textured Surface	Sq. Ft.	1555.0
Stud Shear Connectors	Each	650
Reinforcement Bars, Epoxy Coated	Pound	13680
Drilling and Setting Soldier Piles (In Soil)	Cu. Ft.	7620.0
Furnishing Soldier Piles (HP14x73)	Foot	546.0
Furnishing Soldier Piles (W24x68)	Foot	130.0
Furnishing Soldier Piles (W24x117)	Foot	874.0

LEGEND:

E.F. Each Face

KNIGHT Engineers & Architects

	DESIGNED - TB	REVISED (A) 12/17/2012 WPM	
	CHECKED - WPM	REVISED	
SCALE - NONE	DRAWN - TB	REVISED	
DATE - 10/15/2012	CHECKED - WPM	REVISED	

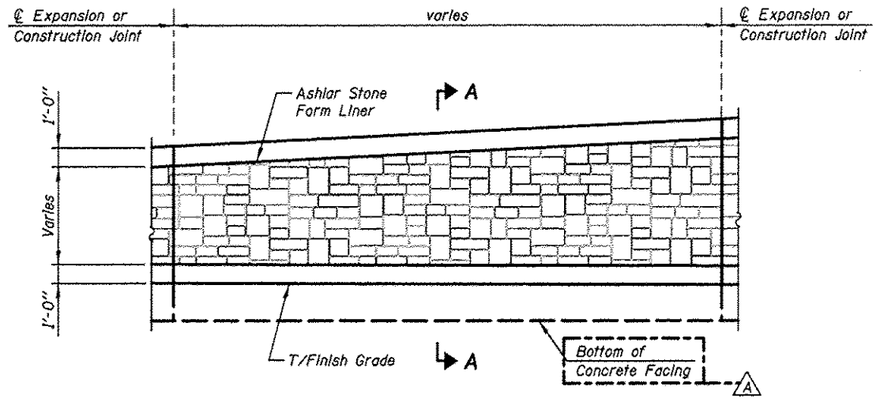
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

WALL SECTIONS AND DETAILS
STRUCTURE NUMBER 022-W064

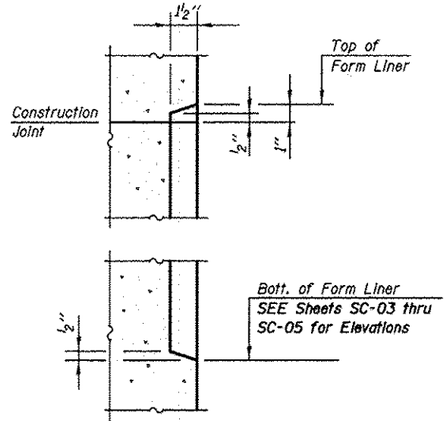
SHEET NO. SC-06 OF 10 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
338	(112 & 113) WRS-5	DUPAGE	963	657
		CONTRACT NO. 60131		

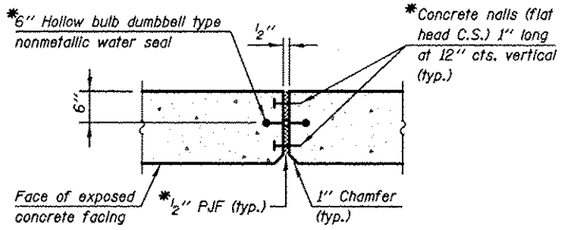
ILLINOIS FED. AID PROJECT



INSIDE ELEVATION - FORM LINER

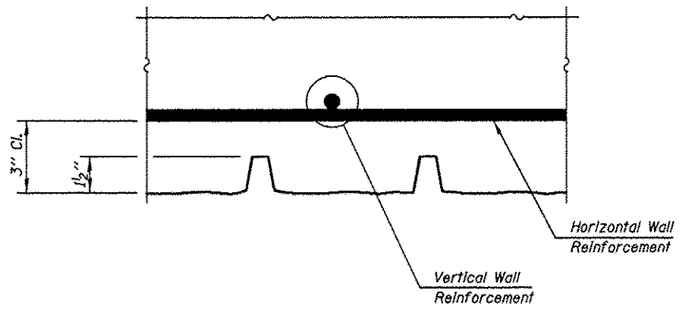


SECTION A-A

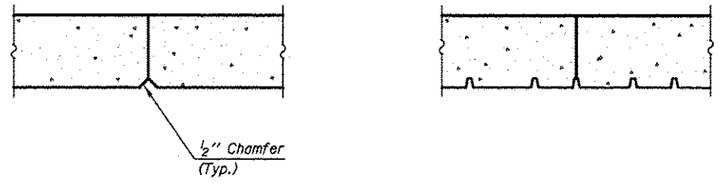


WALL EXPANSION JOINT DETAIL

* Cost Included with "Concrete Structures".



PLAN - FORM LINER

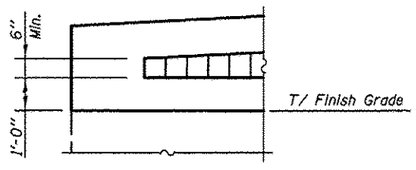


WALL CONSTRUCTION JOINT DETAIL

NOTE:
SEE Sheets SC-03 thru SC-05 for Bottom of Form Liner Elevations

WALL #	
STATION	ELEVATION
00+00.00	El. 00.00

WALL #	
STATION	ELEVATION
00+00.00	El. 00.00



END FORM LINER DETAIL

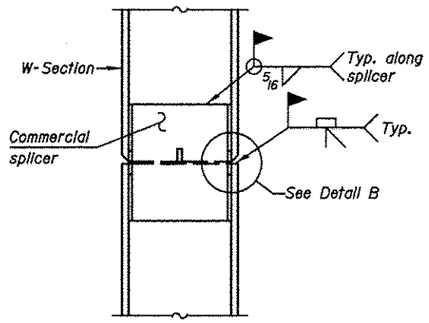
KNIGHT
Engineers & Architects

		DESIGNED - TB	REVISED △2 12/17/2012 WPM
		CHECKED - WPM	REVISED
SCALE - NONE		DRAWN - TB	REVISED
DATE - 10/15/2012		CHECKED - WPM	REVISED

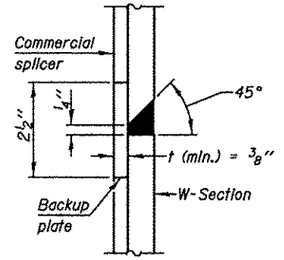
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

ARCHITECTURAL FINISH AND JOINT DETAILS
STRUCTURE NUMBER 022-W064
SHEET NO. SC-07 OF 10 SHEETS

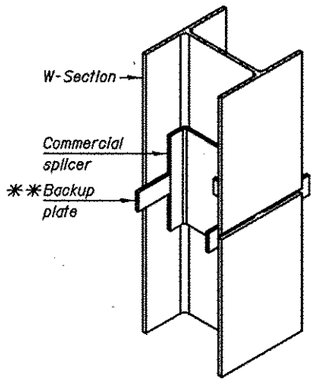
F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
338	(112 & 113) WRS-5	DUPAGE	963	658
		CONTRACT NO. 60131		
	ILLINOIS FED. AID PROJECT			



ELEVATION

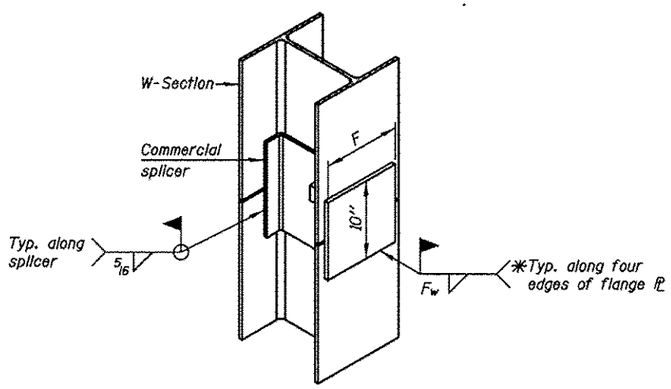


DETAIL B



ISOMETRIC VIEW

WELDED COMMERCIAL SPLICE



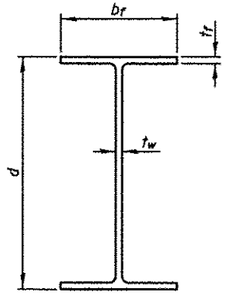
ISOMETRIC VIEW

WELDED COMMERCIAL SPLICE ALTERNATE

* Interrupt welds 1/4" from end of web and/or each flange.

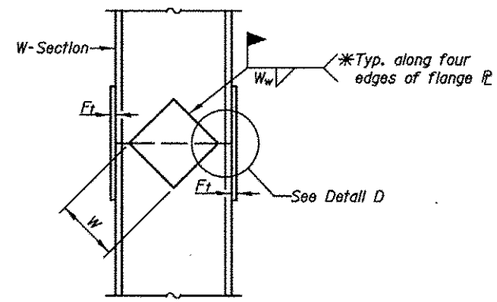
** Remove portions of backup plates that extend outside the flanges.

*** Weld size per pile shoe manufacturer (5/16" min.).

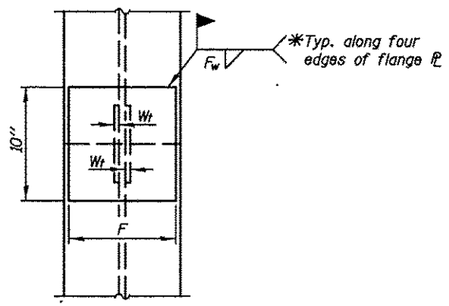


STEEL PILE

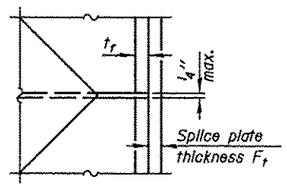
Designation	Depth d	Flange width b_f	Flange thickness t_f	Web thickness t_w	Encasement diameter A
HP 14x73	$13\frac{5}{8}$"	$14\frac{5}{8}$"	$\frac{1}{2}$"	$\frac{1}{2}$"	30"
W24x68	$23\frac{3}{4}$"	9"	$\frac{9}{16}$"	$\frac{7}{16}$"	36"
x117	$24\frac{1}{4}$"	$12\frac{3}{4}$"	$\frac{7}{8}$"	$\frac{9}{16}$"	36"



ELEVATION



END VIEW



DETAIL D

Designation	F	F_t	F_w	W	W_t	W_w
HP 14x73	$12\frac{1}{2}$"	$\frac{5}{8}$"	$\frac{9}{16}$"	$7\frac{3}{4}$"	$\frac{5}{8}$"	$\frac{1}{2}$"
W24x68	8"	$\frac{3}{4}$"	$\frac{9}{16}$"	15"	$\frac{1}{2}$"	$\frac{3}{8}$"
x117	10"	$1\frac{1}{8}$"	$\frac{15}{16}$"	15"	$\frac{1}{2}$"	$\frac{3}{8}$"

WELDED PLATE FIELD SPLICE

Notes:

The steel W-Section shall be according to AASHTO M270 Grade 50.

KNIGHT
Engineers & Architects

		DESIGNED - TB	REVISED
		CHECKED - WPM	REVISED
SCALE - NONE		DRAWN - TB	REVISED
DATE - 10/15/2012		CHECKED - WPM	REVISED

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

PILE SPLICE DETAILS
STRUCTURE NUMBER 022-W064
SHEET NO. SC-08 OF 10 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
338	(112 & 113) WRS-5	DUPAGE	963	659
		CONTRACT NO. 60131		
	ILLINOIS FED. AID PROJECT			

Geo Services Inc.
Geotechnical, Environmental & Civil Engineering
805 Arbor Court, Unit 204
Naperville, Illinois 60565
(630) 904-2468

SOIL BORING LOG

PAGE 1 of 1
DATE 4/30/2012
LOGGED BY RT
CSI JOB No. 09173

ROUTE IL Route 59 (FAP 338) DESCRIPTION Illinois Route 59-Aurora Avenue/New York Street To Ferry Road
SECTION (112 & 113) WRS-5 LOCATION SEC. 3, 9-10, 15-16, 21-22 TWP. 38N, RNG. 9E, Naperville Township
COUNTY DuPage DRILLING METHOD Hand Auger HAMMER TYPE n/a

STRUCT. NO. 022-W064
Station: 4048+90 to 4052+85.09
BORING NO. RW-63
Station: 4049+88 IL RTE-59
Offset: 94.0' Right
Ground Surface Elev. 702.5

Surface Water Elev. n/a
Stream Bed Elev. n/a
Groundwater Elevation:
First Encounter Dry
Upon Completion
After ____ Hrs.

DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)
6.0" TOPSOIL-black 702.0	HA	-	33
	HA	2.0P	20
CLAY-brown & gray-very stiff to hard (A-6)	HA	2.75P	17
-5	HA	3.5P	17
694.0	HA	4.5+P	15
-10 CLAY LOAM-gray-hard (A-6)	HA	4.5+P	13
	HA	4.5+P	14
689.5 Auger Refusal @ -13.0' End Of Boring Hand Auger			
-15			
-20			
-25			
-30			
-35			
-40			

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B-Bulge, S-Shear, P-Penetrometer) ST-Shelby Tube Sample VS-Vane Shear Test
The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206) The Unit Dry Weight (pcf) is noted in italics above moist (%)
NR-No Recovery HA-Hand Auger

Geo Services Inc.
Geotechnical, Environmental & Civil Engineering
805 Arbor Court, Unit 204
Naperville, Illinois 60565
(630) 904-2468

SOIL BORING LOG

PAGE 1 of 1
DATE 4/30/2012
LOGGED BY RT
CSI JOB No. 09173

ROUTE IL Route 59 (FAP 338) DESCRIPTION Illinois Route 59-Aurora Avenue/New York Street To Ferry Road
SECTION (112 & 113) WRS-5 LOCATION SEC. 3, 9-10, 15-16, 21-22 TWP. 38N, RNG. 9E, Naperville Township
COUNTY DuPage DRILLING METHOD Hand Auger HAMMER TYPE n/a

STRUCT. NO. 022-W064
Station: 4048+90 to 4052+85.09
BORING NO. RW-64
Station: 4051+09 IL RTE-59
Offset: 107.0' Right
Ground Surface Elev. 701.4

Surface Water Elev. n/a
Stream Bed Elev. n/a
Groundwater Elevation:
First Encounter 692.4
Upon Completion
After ____ Hrs.

DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)
	HA	-	30
TOPSOIL-black	HA	2.0P	26
698.4			
	HA	2.0P	26
-5 SILTY CLAY-brown & gray-stiff to very stiff (A-6) Wet	HA	1.5P	33
	HA	1.0P	26
691.9			
-10 SILTY CLAY-gray-stiff (A-6)	HA	1.25P	17
	HA	1.25P	18
688.4 Auger Refusal @ -13.0' End Of Boring Hand Auger			
-15			
-20			
-25			
-30			
-35			
-40			

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B-Bulge, S-Shear, P-Penetrometer) ST-Shelby Tube Sample VS-Vane Shear Test
The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206) The Unit Dry Weight (pcf) is noted in italics above moist (%)
NR-No Recovery HA-Hand Auger

Geo Services Inc.
Geotechnical, Environmental & Civil Engineering
805 Arbor Court, Unit 204
Naperville, Illinois 60565
(630) 904-2468

SOIL BORING LOG

PAGE 1 of 1
DATE 4/30/2012
LOGGED BY RT
CSI JOB No. 09173

ROUTE IL Route 59 (FAP 338) DESCRIPTION Illinois Route 59-Aurora Avenue/New York Street To Ferry Road
SECTION (112 & 113) WRS-5 LOCATION SEC. 3, 9-10, 15-16, 21-22 TWP. 38N, RNG. 9E, Naperville Township
COUNTY DuPage DRILLING METHOD Hand Auger HAMMER TYPE n/a

STRUCT. NO. 022-W064
Station: 4048+90 to 4052+85.09
BORING NO. RW-65
Station: 4052+15 IL RTE-59
Offset: 118.9' Right
Ground Surface Elev. 702.2

Surface Water Elev. n/a
Stream Bed Elev. n/a
Groundwater Elevation:
First Encounter Dry
Upon Completion
After ____ Hrs.

DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)
	HA	-	25
TOPSOIL-black 701.2	HA	4.25P	16
CLAY-brown & gray-hard (A-6) Fill 699.7			
TOPSOIL-black 698.7	HA	-	23
	HA	1.5P	24
-5			
	HA	4.5+P	15
CLAY-brown & gray-stiff to hard (A-6)			
	HA	4.5+P	19
-10 691.2	HA	4.5P	20
Auger Refusal @ -11.0' End Of Boring Hand Auger			
-15			
-20			
-25			
-30			
-35			
-40			

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B-Bulge, S-Shear, P-Penetrometer) ST-Shelby Tube Sample VS-Vane Shear Test
The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206) The Unit Dry Weight (pcf) is noted in italics above moist (%)
NR-No Recovery HA-Hand Auger

KNIGHT
Engineers & Architects

	DESIGNED - GSI		REVISED
	CHECKED - WPM		REVISED
SCALE - NONE	DRAWN - TB		REVISED
DATE - 10/15/2012	CHECKED - WPM		REVISED

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

SOIL BORING LOGS
STRUCTURE NUMBER 022-W064
SHEET NO. SC-09 OF 10 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
338	(112 & 113) WRS-5	DUPAGE	963	660
		CONTRACT NO. 60131		
ILLINOIS FED. AID PROJECT				

Geo Services Inc.
Geotechnical, Environmental & Civil Engineering
805 Amherst Court Suite 204
Naperville, Illinois 60565
(630) 355-2838

SOIL BORING LOG

PAGE 1 of 1
DATE 4/30/2012
LOGGED BY RT
GSI JOB No. 09173

ROUTE IL Route 59 (FAP 338) — DESCRIPTION Illinois Route 59-Aurora Avenue/New York Street To Ferry Road
SECTION (112 & 113) WRS-5 — LOCATION SEC. 3, 9-10, 15-16, 21-22 TWP. 38N, RNG. 9E, Naperville Township
COUNTY DuPage — DRILLING METHOD Hand Auger — HAMMER TYPE n/a

STRUCT. NO. 022-W064
Station: 4048+90 to 4052+85.09
BORING NO. RW-66
Station: 4052+73 IL RTE-59
Offset: 133.2' Right
Ground Surface Elev. 702.6

Surface Water Elev. n/a
Stream Bed Elev. n/a
Groundwater Elevation:
First Encounter 696.6 ▼
Upon Completion ▽
After ___ Hrs. ▽

Description	Elev.	DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)
TOPSOIL-black			HA	-	27
	700.1				
SILTY CLAY-dark brown & gray-stiff (A-6) Wet			HA	1.0P	25
	698.1				
CLAY-brown & gray-stiff to hard (A-6)		-5	HA	1.75P	20
▼					
			HA	4.5+P	16
			HA	4.5P	19
		-10			
			HA	3.0P	21
	690.6				
Auger Refusal @ -12.0' End Of Boring Hand Auger					
		-15			
		-20			

DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)
-25			
-30			
-35			
-40			

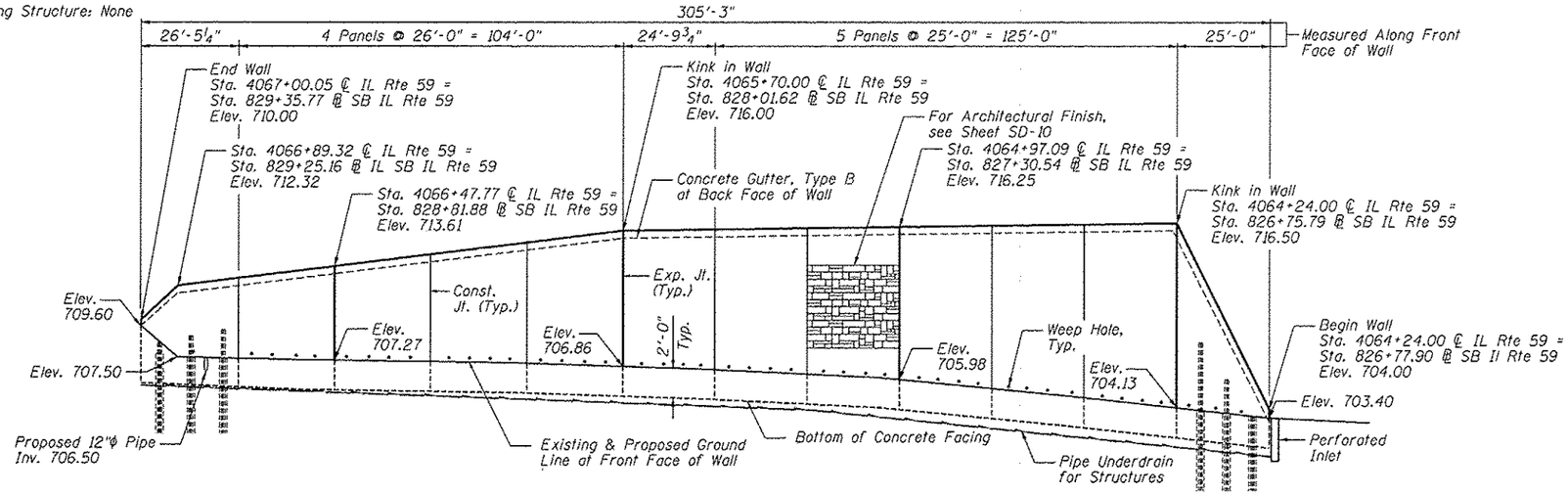
The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B-Bulge, S-Shear, P-Penetrometer) ST-Shelby Tube Sample VS-Vane Shear Test
The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206) The Unit Dry Weight (pcf) is noted in italics above moist (%)
NR-No Recovery HA-Hand Auger

KNIGHT Engineers & Architects	SCALE - NONE DATE - 10/15/2012	DESIGNED - GSI CHECKED - WPM DRAWN - TB CHECKED - WPM	REVISED REVISED REVISED REVISED	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	SOIL BORING LOGS STRUCTURE NUMBER 022-W064 SHEET NO. SC-10 OF 10 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
338	(112 & 113) WRS-5	DUPAGE	963	661
		CONTRACT NO. 60I31		
	ILLINOIS FED. AID PROJECT			

Bench Mark: DuPage County survey disk at north end of the west bridge wall, IL Rte 59 over Interstate Route 88. Elev. 731.43

Existing Structure: None



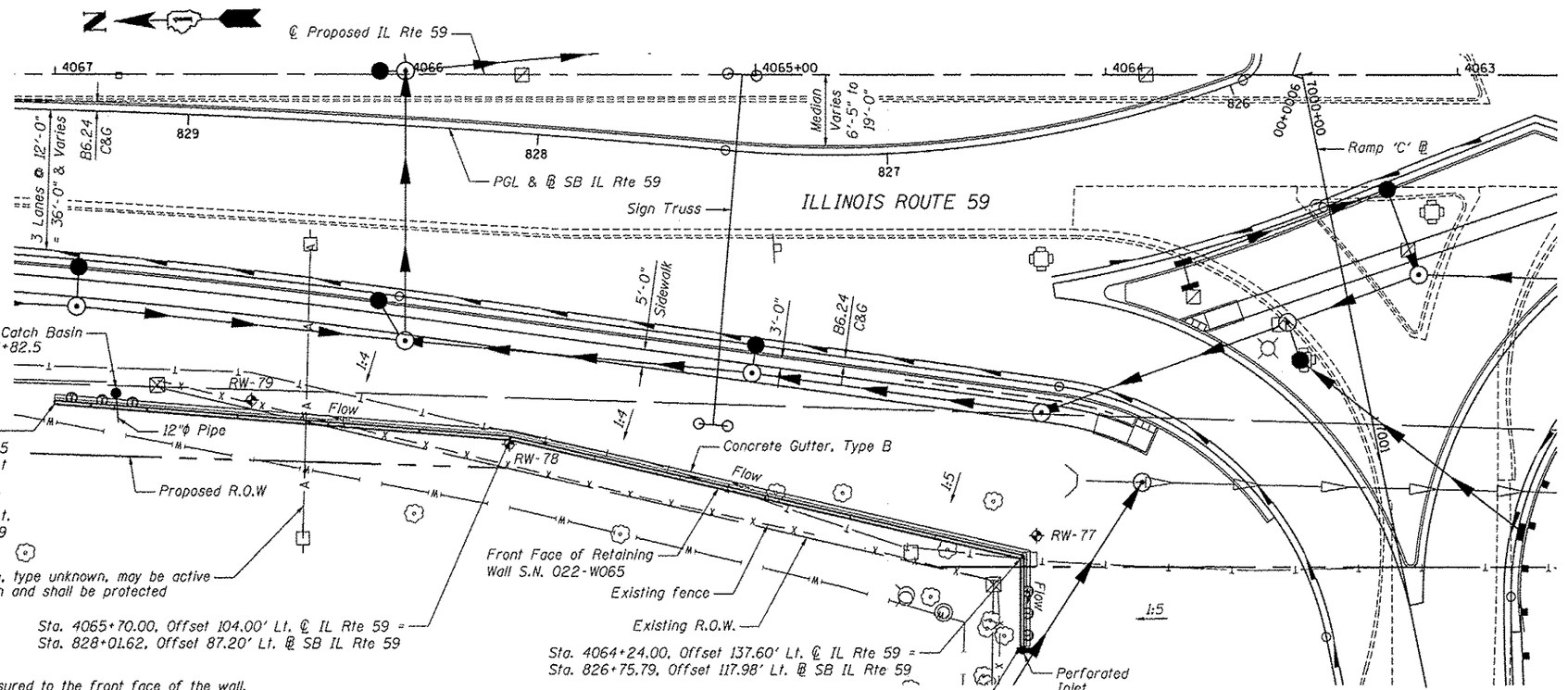
ELEVATION

INDEX OF SHEETS

STATE OF ILLINOIS
DEBORAH A. ZROKA
081-005152
LICENSED STRUCTURAL ENGINEER

Signature 10-15-12
Date

November 30, 2014
Expires



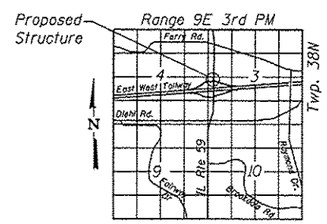
PLAN

Notes:
Offsets are measured to the front face of the wall.

Existing telephone line to be relocated as required. The existing 12" water main will not be relocated and must be protected during construction.

APPROVED
For Structural Adequacy Only

P. Carl Puzey 1 Rs
Engineer of Bridges & Structures



LOCATION SKETCH

GENERAL PLAN
IL RTE 59 FAP RTE 338
SECTION (112 & 113) WRS-5
DUPAGE COUNTY
STA. 4064+24.00 TO STA. 4067+00.05
SN 022-W065

FILE NAME = $FILE$

ZROKA engineering — Zroka Engineering, P.C. 4216 North Hermitage Chicago, IL 60613	USER NAME = $USER$	DESIGNED - LAS	REVISED
		CHECKED - DAZ	REVISED
	PLOT SCALE = $SCALE$	DRAWN - SAW	REVISED
	DATE = 10/15/2012	CHECKED - JLA	REVISED

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

GENERAL PLAN
STRUCTURE NUMBER 022-W065
SHEET NO. SD-1 OF SD-11 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
338/IL 59	(112 & 113) WRS-5	DUPAGE	963	662
		CONTRACT NO. 60131		
		ILLINOIS FED. AID PROJECT		

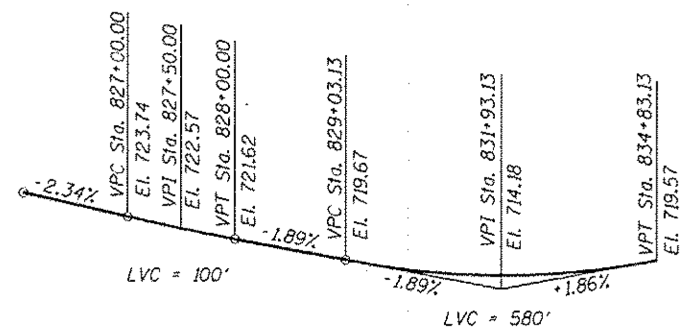
DESIGN SPECIFICATIONS

2012 AASHTO LRFD Bridge Design Specifications 6th Edition with 2012 Interims

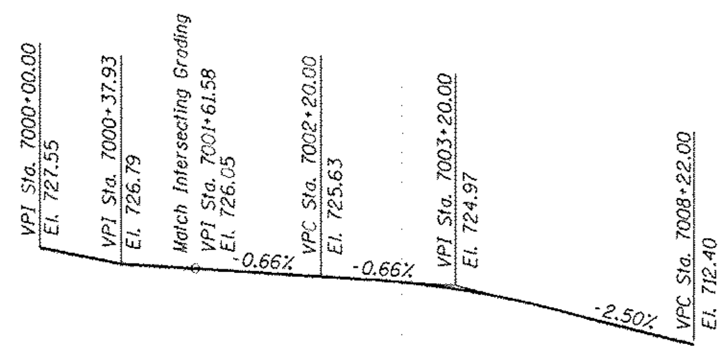
DESIGN STRESSES

FIELD UNITS

f'_c = 3,500 psi
f_y = 60,000 psi (reinforcement)
f_y = 36,000 psi (M270 Grade 36)



℄ SB IL ROUTE 59 - PROPOSED PROFILE GRADE LINE
(along edge of pavement proposed SB IL Route 59)



℄ RAMP C - PROPOSED PROFILE GRADE LINE
(along ℄ proposed Ramp C)

GENERAL NOTES

1. Reinforcement bars designated (E) shall be epoxy coated.
2. The Contractor is responsible for the design and performance of the lagging using no less than 3" nominal rough-sawn thickness and timber with a minimum allowable bending stress of 1000 psi.

TOTAL BILL OF MATERIAL

ITEM	UNIT	TOTAL
Structure Excavation	Cu. Yd.	192
Concrete Structures	Cu. Yd.	134.3
Stud Shear Connectors	Each	436
Reinforcement Bars, Epoxy Coated	Pound	19,630
Geocomposite Wall Drain	Sq. Yd.	185
Untreated Timber Lagging	Sq. Ft.	2,445
Furnishing Soldier Piles (W Section)	Foot	1,190
Pipe Underdrains for Structures, 4"	Foot	305
Drilling and Setting Soldier Piles (In Soil)	Cu. Ft.	6,258
Form Liner Textured Surface	Sq. Ft.	1,877
Granular Backfill for Structures	Cu. Yd.	315

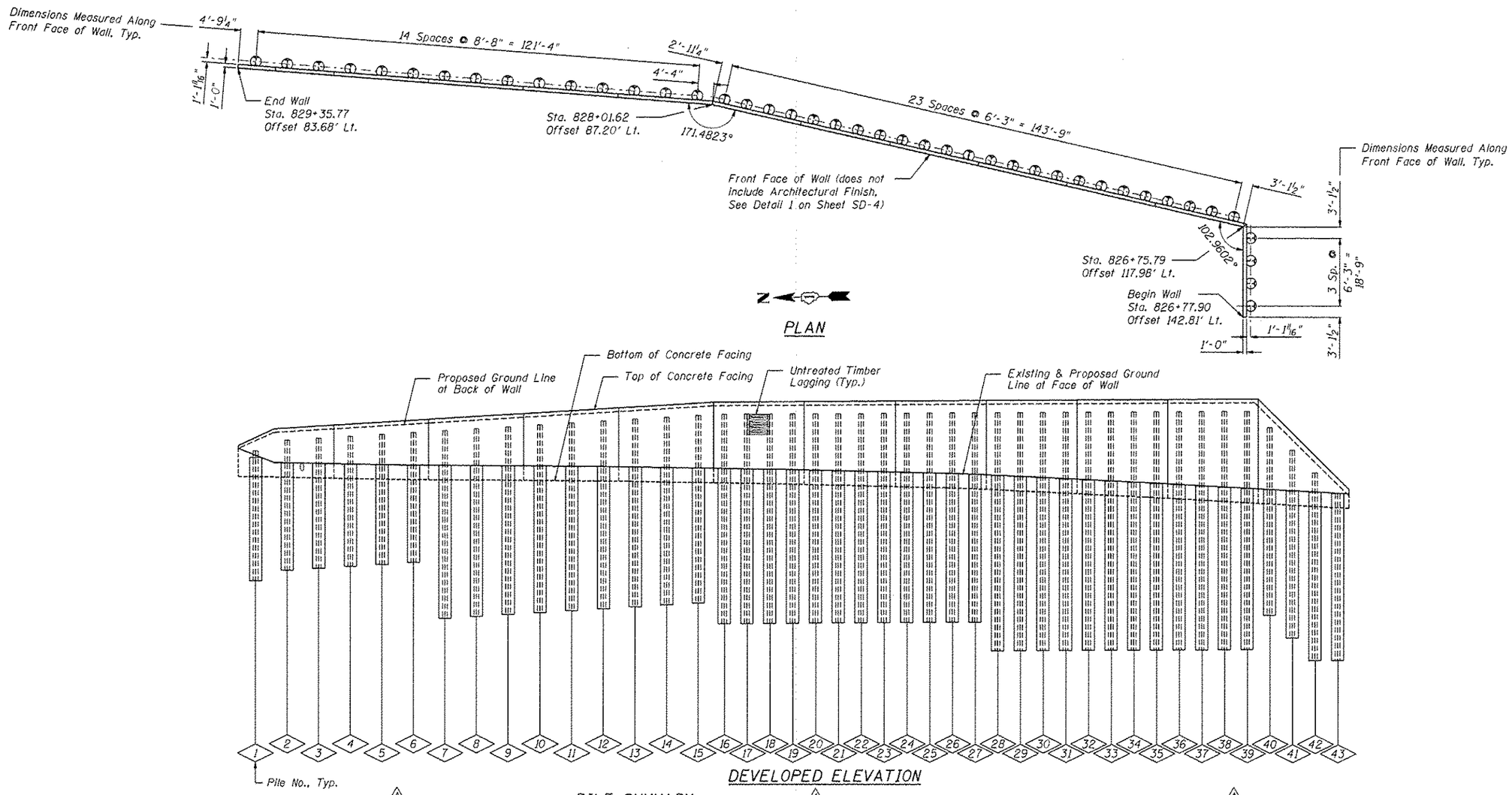
FILE NAME = ...\60131-W065-202-GenData.dgn

Zroka Engineering, P.C. 4216 North Hermitage Chicago, IL 60613	USER NAME = SAW	DESIGNED - LAS	REVISED (A) 12/17/2012 L.A.S.
		CHECKED - DAZ	REVISED
	PLOT SCALE = 30.00 '/ IN.	DRAWN - SAW	REVISED
	PLOT DATE = 12/12/2012	CHECKED - JLA	REVISED

STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION

GENERAL NOTES & BILL OF MATERIAL
STRUCTURE NUMBER 022-W065
SHEET NO. SD-2 OF SD-11 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
338/IL 59	(112 & 113) WRS-5	DUPAGE	963	663
		CONTRACT NO. 60131		
		ILLINOIS FED. AID PROJECT		



DEVELOPED ELEVATION

PILE SUMMARY

Pile No.	Station	Offset to ℄ Pile	Pile Designation	Length	Bottom Elevation	Top Elevation	Pile No.	Station	Offset to ℄ Pile	Pile Designation	Length	Bottom Elevation	Top Elevation	Pile No.	Station	Offset to ℄ Pile	Pile Designation	Length	Bottom Elevation	Top Elevation
1	829+30.77	81.77	W27x146	18'-0"	691.40	709.40	16	827+98.30	85.54	W27x146	29'-0"	685.34	714.34	31	827+13.71	100.71	W27x146	33'-0"	681.66	714.66
2	829+21.87	82.17	W27x146	18'-0"	692.75	710.75	17	827+91.94	86.48	W27x146	29'-0"	685.36	714.36	32	827+09.05	102.20	W27x146	33'-0"	681.68	714.68
3	829+12.97	82.54	W27x146	18'-0"	693.01	711.01	18	827+85.58	87.41	W27x146	29'-0"	685.38	714.38	33	827+04.43	103.77	W27x146	33'-0"	681.70	714.70
4	829+04.07	82.89	W27x146	18'-0"	693.28	711.28	19	827+79.21	88.33	W27x146	29'-0"	685.41	714.41	34	826+99.84	105.42	W27x146	33'-0"	681.72	714.72
5	828+95.17	83.21	W27x146	18'-0"	693.55	711.55	20	827+72.85	89.23	W27x146	29'-0"	685.43	714.43	35	826+95.28	107.16	W27x146	33'-0"	681.74	714.74
6	828+86.27	83.50	W27x146	18'-0"	693.81	711.81	21	827+66.47	90.13	W27x146	29'-0"	685.45	714.45	36	826+90.76	108.98	W27x146	33'-0"	681.76	714.76
7	828+77.36	83.78	W27x146	26'-0"	686.08	712.08	22	827+60.10	91.01	W27x146	29'-0"	685.47	714.47	37	826+86.28	110.87	W27x146	33'-0"	681.78	714.78
8	828+68.45	84.02	W27x146	26'-0"	686.34	712.34	23	827+53.72	91.87	W27x146	29'-0"	685.49	714.49	38	826+81.84	112.85	W27x146	33'-0"	681.80	714.80
9	828+59.55	84.24	W27x146	26'-0"	686.61	712.61	24	827+47.33	92.73	W27x146	29'-0"	685.51	714.51	39	826+77.44	114.91	W27x146	33'-0"	681.82	714.82
10	828+50.64	84.44	W27x146	26'-0"	686.87	712.87	25	827+42.24	93.60	W27x146	29'-0"	685.53	714.53	40	826+74.51	121.34	W27x146	26'-0"	687.27	713.27
11	828+41.72	84.61	W27x146	26'-0"	687.14	713.14	26	827+37.42	94.57	W27x146	29'-0"	685.55	714.55	41	826+75.07	127.54	W27x146	26'-0"	684.15	710.15
12	828+32.81	84.75	W27x146	26'-0"	687.40	713.40	27	827+32.63	95.62	W27x146	29'-0"	685.57	714.57	42	826+75.62	133.75	W27x146	26'-0"	681.02	707.02
13	828+23.90	84.87	W27x146	26'-0"	687.67	713.67	28	827+27.86	96.76	W27x146	33'-0"	681.59	714.59	43	826+76.15	139.95	W27x146	26'-0"	677.90	703.90
14	828+14.99	84.97	W27x146	26'-0"	687.94	713.94	29	827+23.11	97.99	W27x146	33'-0"	681.61	714.61							
15	828+06.07	85.04	W27x146	26'-0"	688.20	714.20	30	827+18.39	99.31	W27x146	33'-0"	681.64	714.64							

BILL OF MATERIAL

Item	Unit	Quantity
Furnishing Soldier Piles (W Section)	Foot	1,190
Drilling and Setting Soldier Piles (In Soil)	Cu Ft	6,258
Untreated Timber Lagging	Sq Ft	2,445
Stud Shear Connectors	Each	436

Note: All offsets are to the left of ℄ SB IL Rte 59

FILE NAME = ...\08131-W065-003-Pile Layout.dgn

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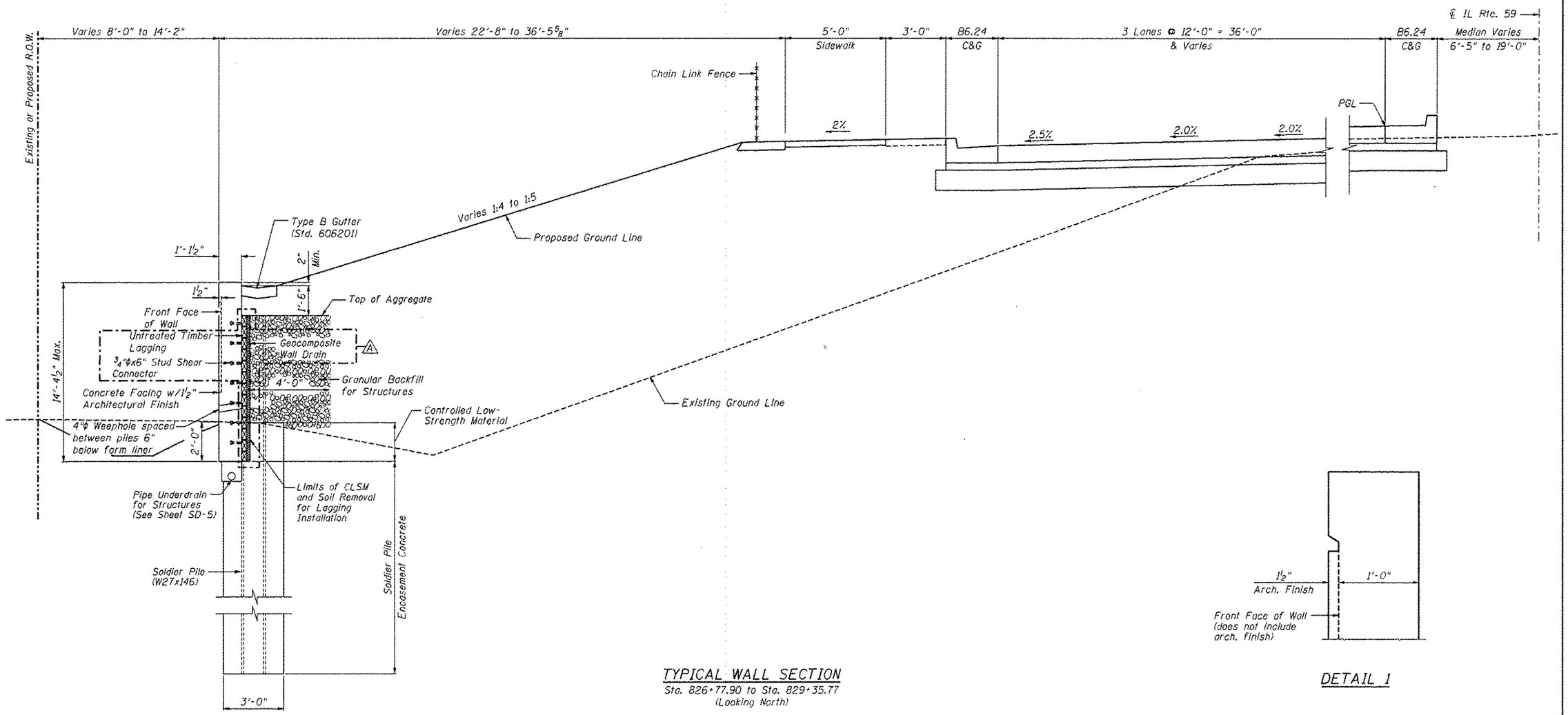
4216 North Hermitage
Chicago, IL 60613

USER NAME = SAW	DESIGNED - LAS	REVISED ⚠ 12/17/2012 L.A.S.
	CHECKED - DAZ	REVISED
PLOT SCALE = 38.88 ' / IN.	DRAWN - SAW	REVISED
PLOT DATE = 12/12/2012	CHECKED - JLA	REVISED

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

SOLDIER PILE LAYOUT
STRUCTURE NUMBER 022-W065
SHEET NO. SD-3 OF SD-11 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
338/IL 59	1112 & 1131 WRS-5	DUPAGE	963	664
		CONTRACT NO. 60131		
	ILLINOIS FED. AID PROJECT			



TYPICAL WALL SECTION

Sta. 826+77.90 to Sta. 829+35.77

(Looking North)

DETAIL 1

A

FILE NAME = ...\60131-W065-804-TypSec.dgn

USER NAME = SAW	DESIGNED - LAS	REVISED A 12/17/2012 L.A.S.	
	CHECKED - DAZ	REVISED	
PLOT SCALE = 5.00 ' / IN.	DRAWN - SAW	REVISED	
PLOT DATE = 12/12/2012	CHECKED - JLA	REVISED	

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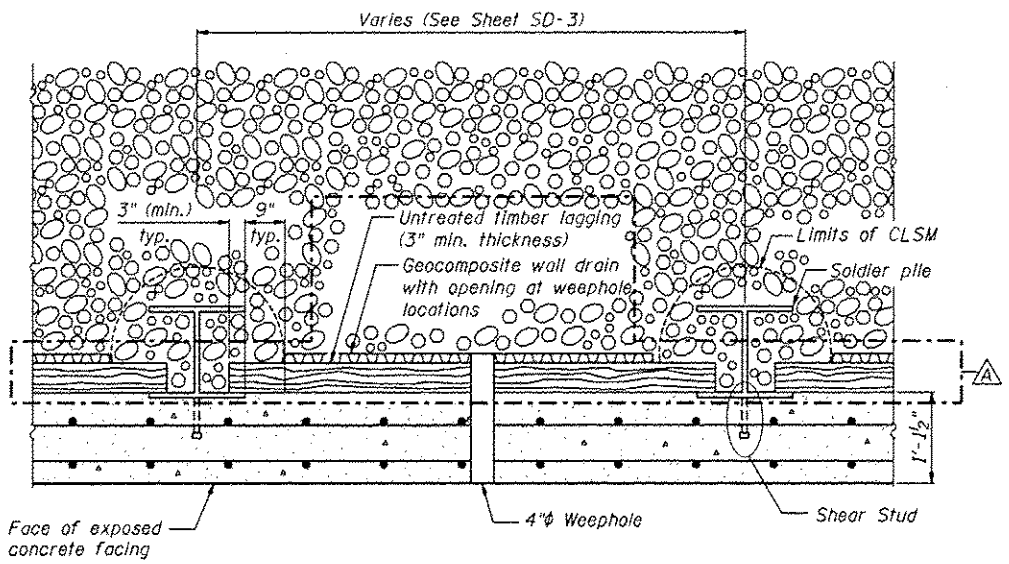
Chicago, IL 60613

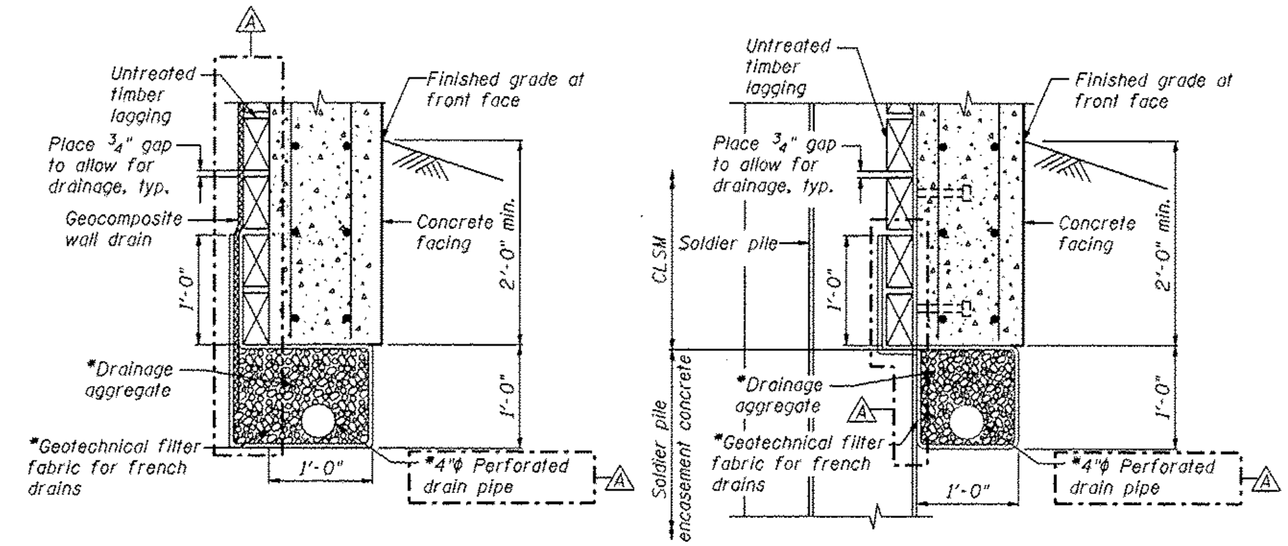
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

TYPICAL SECTION
STRUCTURE NUMBER 022-W065
SHEET NO. SD-4 OF SD-11 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
338/IL 59	(112 & 113) WRS-5	DUPAGE	963	665
		CONTRACT NO. 60131		
		ILLINOIS FED. AID PROJECT		

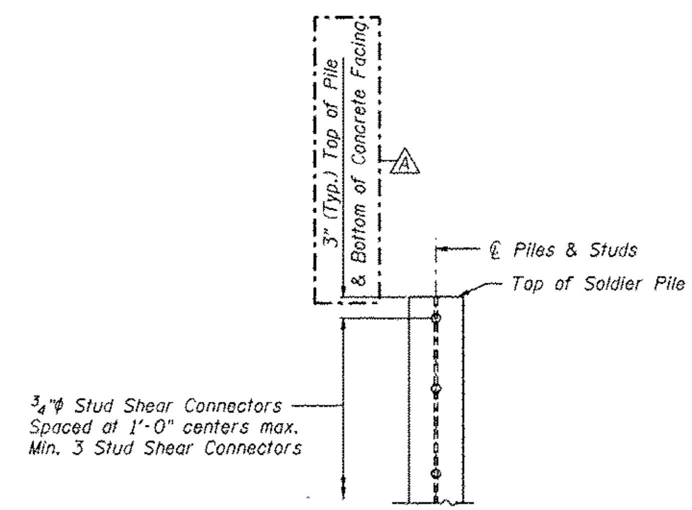


SECTION THRU DRILLED SOLDIER PILE WALL

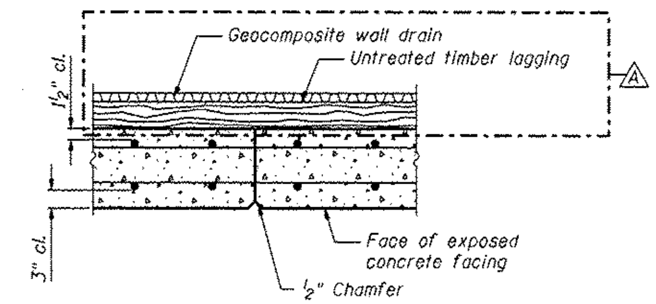


PIPE UNDERDRAIN DETAIL

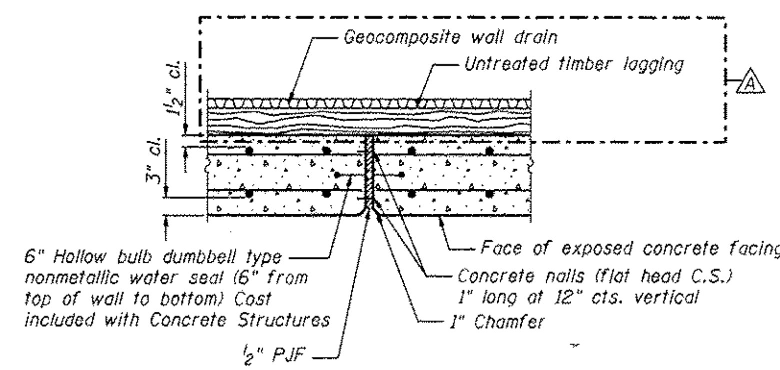
*Included in the cost of "Pipe Underdrains for Structures"



DETAIL OF SHEAR STUD PLACEMENT



CONSTRUCTION JOINT DETAIL



EXPANSION JOINT DETAIL

FILE NAME : ...\60131-W065-005-Details.dgn

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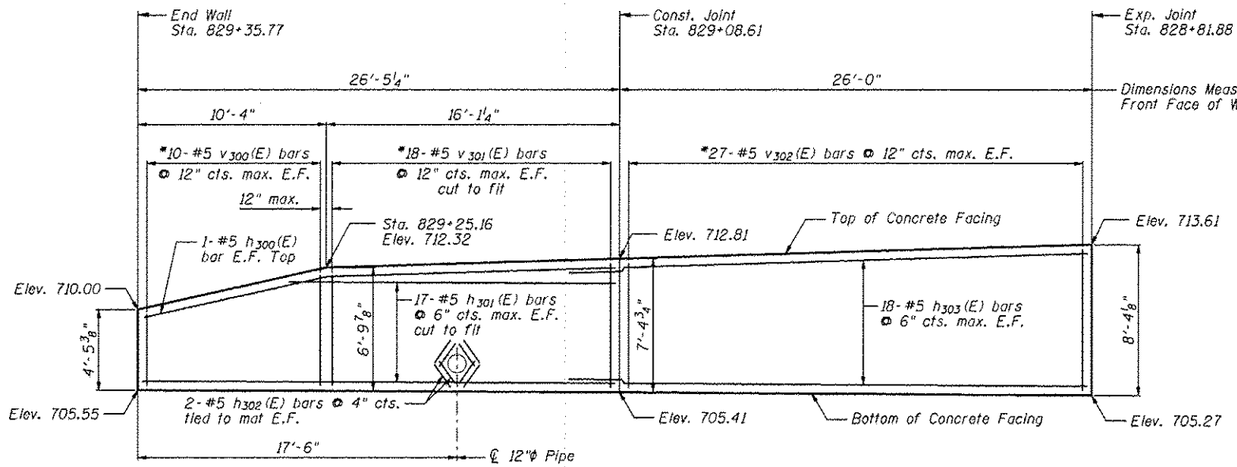
USER NAME = SAW	DESIGNED - LAS	REVISED (A) 12/17/2012 L.A.S.
	CHECKED - DAZ	REVISED
PLOT SCALE = 5.00 ' / IN.	DRAWN - SAW	REVISED
PLOT DATE = 12/12/2012	CHECKED - JLA	REVISED

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

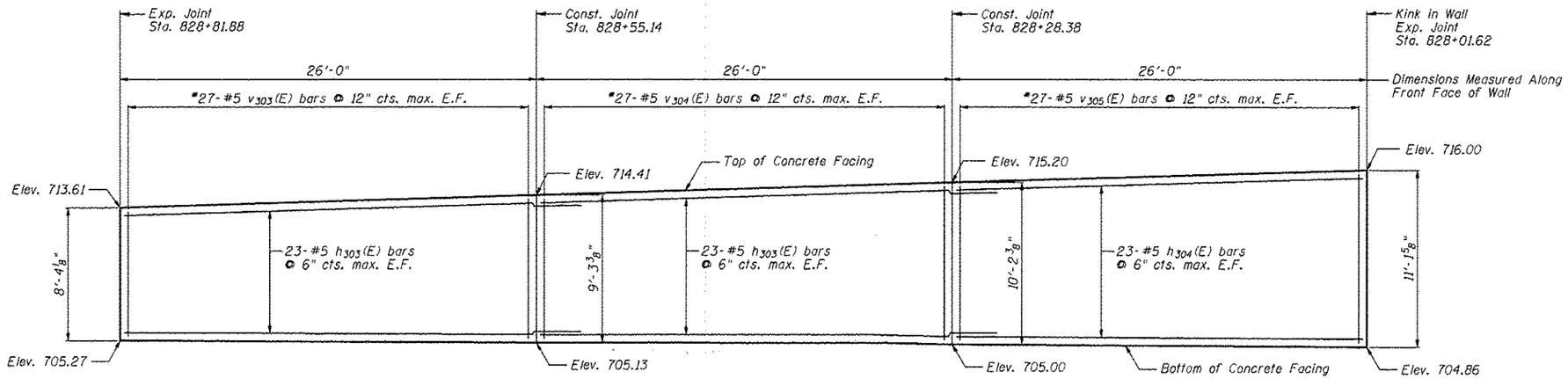
DETAILS
STRUCTURE NUMBER 022-W065

SHEET NO. SD-5 OF SE-11 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
338/IL 59	(112 & 113) WRS-5	DUPAGE	963	666
		CONTRACT NO. 60131		
		ILLINOIS FED. AID PROJECT		



ELEVATION



ELEVATION

Notes:

Minimum lap for #5 bar is 3'-8".

Space reinforcement in wall to miss shear studs.

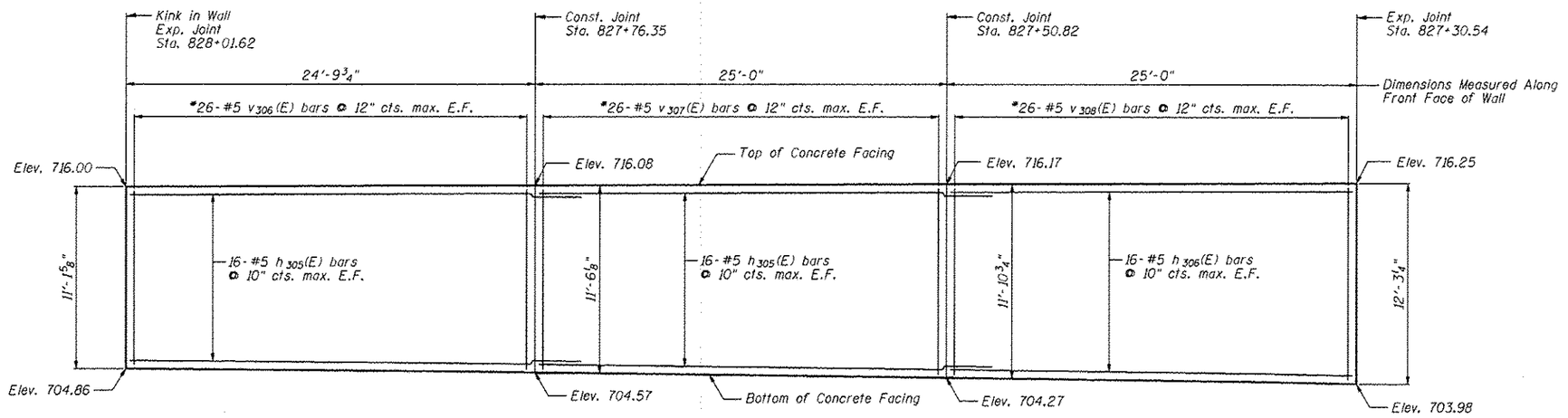
* signifies cut bar. Order per length on Bill of Material. Cut as shown in Cutting Diagram and use half of bars in each face.

See Sheet SD-8 for Concrete Facing Details and Bill of Material.

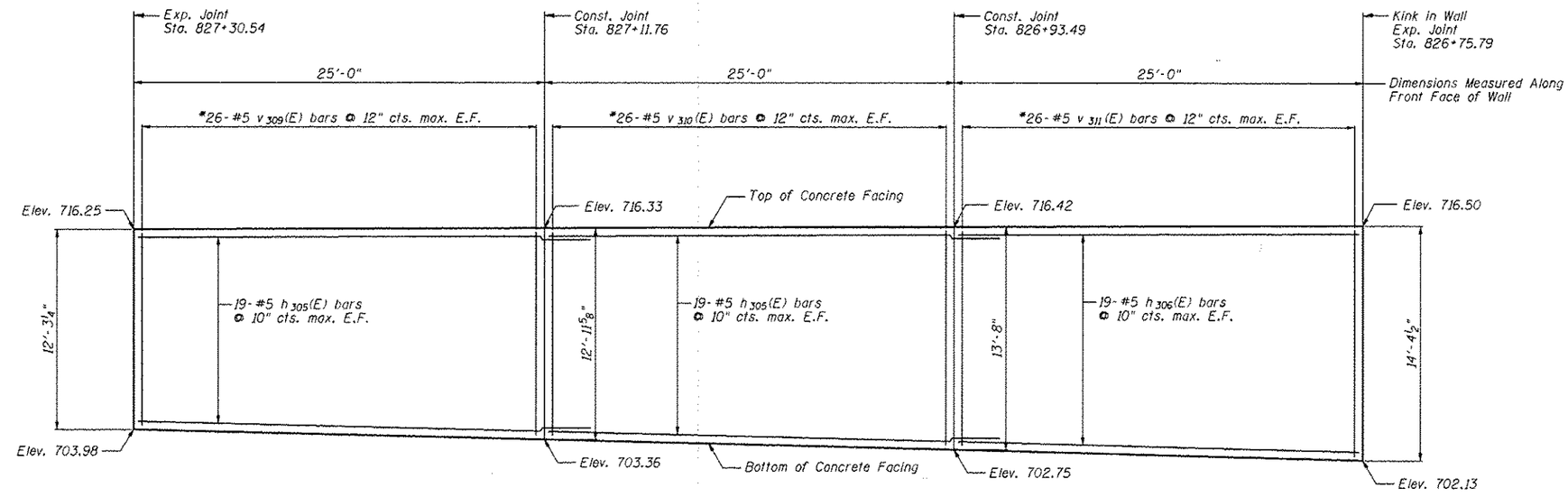
FILE NAME = ...\60131-W065-026-ConcFacing1.dgn

ZROKA engineering — Zroka Engineering, P.C. 4216 North Hermitage Chicago, IL 60613	USER NAME = SAW	DESIGNED - LAS	REVISED ⚠ 12/17/2012 L.A.S.	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	CONCRETE FACING 1 STRUCTURE NUMBER 022-W065
		CHECKED - DAZ	REVISED		
	PLOT SCALE = 8.0000 ' / IN.	DRAWN - SAW	REVISED		SHEET NO. SD-6 OF SD-11 SHEETS
	PLOT DATE = 12/12/2012	CHECKED - JLA	REVISED		

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
338/IL 59	(112 & 113) WRS-5	DUPAGE	963	667
		CONTRACT NO. 60131		
		ILLINOIS FED. AID PROJECT		



ELEVATION



ELEVATION

Notes:

Minimum lap for #5 bar is 3'-8".

Space reinforcement in wall to miss shear studs.

* signifies cut bar. Order per length on Bill of Material. Cut as shown in Cutting Diagram and use half of bars in each face.

See Sheet SD-8 for Concrete Facing Details and Bill of Material.

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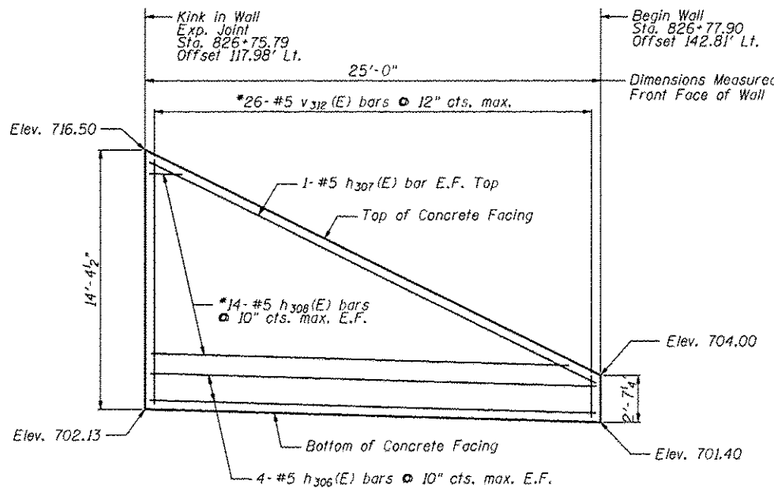
ZROKA engineering — Zroka Engineering, P.C. 4216 North Hermitage Chicago, IL 60613	USER NAME = SAW	DESIGNED - LAS	REVISED ⚠ 12/17/2012 L.A.S.
		CHECKED - DAZ	REVISED
	PLOT SCALE = 0.0080 ' / IN.	DRAWN - SAW	REVISED
	PLOT DATE = 12/12/2012	CHECKED - JLA	REVISED

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

CONCRETE FACING 2
STRUCTURE NUMBER 022-W065
SHEET NO. SD-7 OF SD-11 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
338/IL 59	(112 & 113) WRS-5	DUPAGE	963	668
		CONTRACT NO. 60131		
		ILLINOIS FED. AID PROJECT		



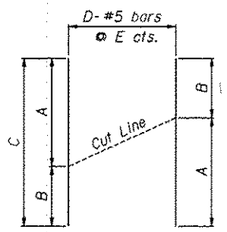
ELEVATION

Notes:

Minimum lap for #5 bar is 3'-8".

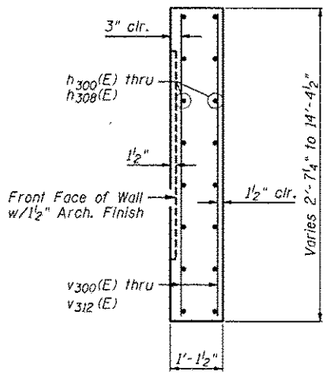
Space reinforcement in wall to miss shear studs.

* signifies cut bar. Order per length on Bill of Material. Cut as shown in Cutting Diagram and use half of bars in each face.



CUTTING DIAGRAM

Bar	A	B	C	D	E
h308(E)	1'-8"	23'-4"	25'-0"	14	10"
v300(E)	4'-1"	6'-6"	10'-7"	10	12"
v301(E)	6'-6"	7'-1"	13'-7"	18	12"
v302(E)	7'-1"	8'-0"	15'-1"	27	12"
v303(E)	8'-0"	8'-11"	16'-11"	27	12"
v304(E)	8'-11"	9'-10"	18'-9"	27	12"
v305(E)	9'-10"	10'-9"	20'-7"	27	12"
v306(E)	10'-9"	11'-2"	21'-11"	26	12"
v307(E)	11'-2"	11'-7"	22'-9"	26	12"
v308(E)	11'-7"	11'-11"	23'-6"	26	12"
v309(E)	11'-11"	12'-8"	24'-7"	26	12"
v310(E)	12'-8"	13'-4"	26'-0"	26	12"
v311(E)	13'-4"	14'-0"	27'-4"	26	12"
v312(E)	14'-0"	2'-3"	16'-3"	26	12"

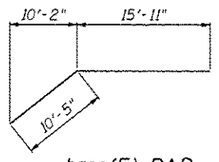


SECTION THRU
CONCRETE FACING

BILL OF MATERIAL

Bar	No.	Size	Length	Shape
h300(E)	2	#5	26'-4"	
h301(E)	34	#5	26'-1"	
h302(E)	16	#5	4'-0"	
h303(E)	128	#5	29'-8"	
h304(E)	46	#5	25'-8"	
h305(E)	140	#5	28'-8"	
h306(E)	78	#5	24'-8"	
h307(E)	2	#5	27'-7"	
h308(E)	14	#5	25'-0"	
v300(E)	10	#5	10'-7"	
v301(E)	18	#5	13'-7"	
v302(E)	27	#5	15'-1"	
v303(E)	27	#5	16'-11"	
v304(E)	27	#5	18'-9"	
v305(E)	27	#5	20'-7"	
v306(E)	26	#5	21'-11"	
v307(E)	26	#5	22'-9"	
v308(E)	26	#5	23'-6"	
v309(E)	26	#5	24'-7"	
v310(E)	26	#5	26'-0"	
v311(E)	26	#5	27'-4"	
v312(E)	26	#5	16'-3"	

Item	Unit	Quantity
Concrete Structures	Cu. Yd.	134.3
Reinforcement Bars, Epoxy Coated	Pound	19,630
Pipe Underdrains for Structures, 4"	Foot	305 A
Geocomposite Wall Drain	Sq. Yd.	185



h300(E) BAR

A

FILE NAME = ...\58131-W065-003-ConcFacingDetails.dgn

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USER NAME = SAW	DESIGNED - LAS	REVISED A 12/17/2012 L.A.S.
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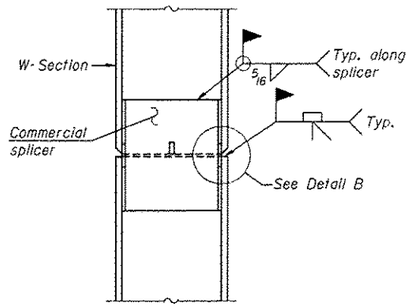
PLOT SCALE = 8.0000 ' / IN.	DRAWN - SAW	REVISED
PLOT DATE = 12/12/2012	CHECKED - JLA	REVISED

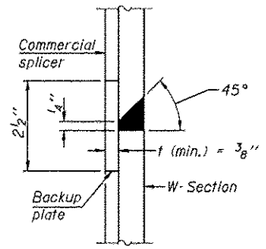
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

CONCRETE FACING & DETAILS
STRUCTURE NUMBER 022-W065
SHEET NO. SD-8 OF SD-11 SHEETS

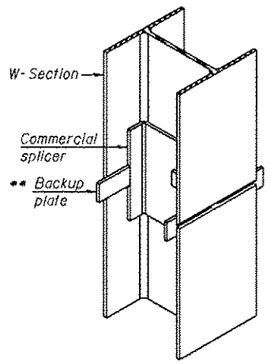
F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
338/IL 59	(112 & 113) WRS-5	DUPAGE	963	669
		CONTRACT NO. 60131		
	ILLINOIS FED. AID PROJECT			



ELEVATION

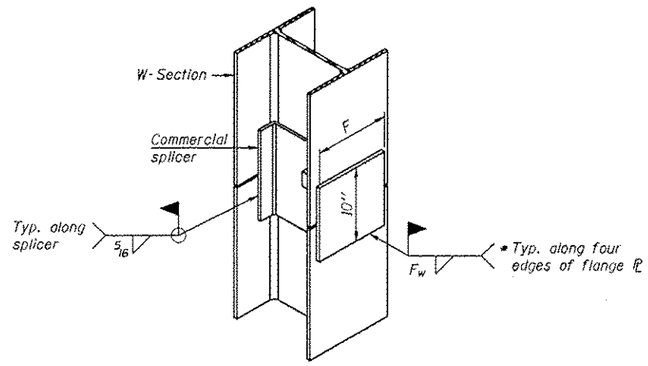


DETAIL "B"



ISOMETRIC VIEW

WELDED COMMERCIAL SPLICE

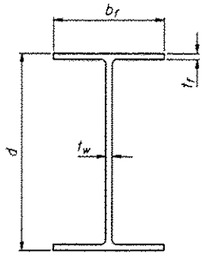


ISOMETRIC VIEW

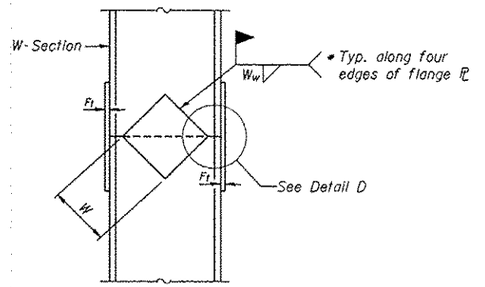
WELDED COMMERCIAL SPLICE ALTERNATE

* Interrupt welds ¼" from end of web and/or each flange.

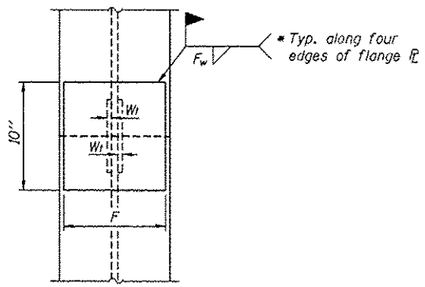
** Remove portions of backup plates that extend outside the flanges.



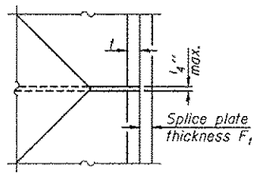
Designation	Depth d	Flange width b_f	Flange thickness t_f	Web thickness t_w	Encasement diameter A
W27x146	27⅜"	14"	1"	⅝"	36"



ELEVATION



END VIEW



DETAIL D

Designation	F	F_t	F_w	W	W_1	W_w
W27x146	12"	1¼"	¾"	16¾"	⅝"	⅜"

WELDED PLATE FIELD SPLICE

Note:
The steel W-Sections shall be according to AASHTO M270 Grade 36.

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USER NAME = SAW	DESIGNED - LAS	REVISED ⚠ 12/17/2012 L.A.S.	
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PLOT SCALE = 0.1667 ' / IN.	DRAWN - SAW	REVISED	
PLOT DATE = 12/12/2012	CHECKED - JLA	REVISED	

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

PILE SPLICE DETAILS
STRUCTURE NUMBER 022-W065
SHEET NO. SD-9 OF SD-11 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
338/IL 59	(112 & 113) WRS-5	DUPAGE	963	670
		CONTRACT NO. 60131		
		ILLINOIS FED. AID PROJECT		

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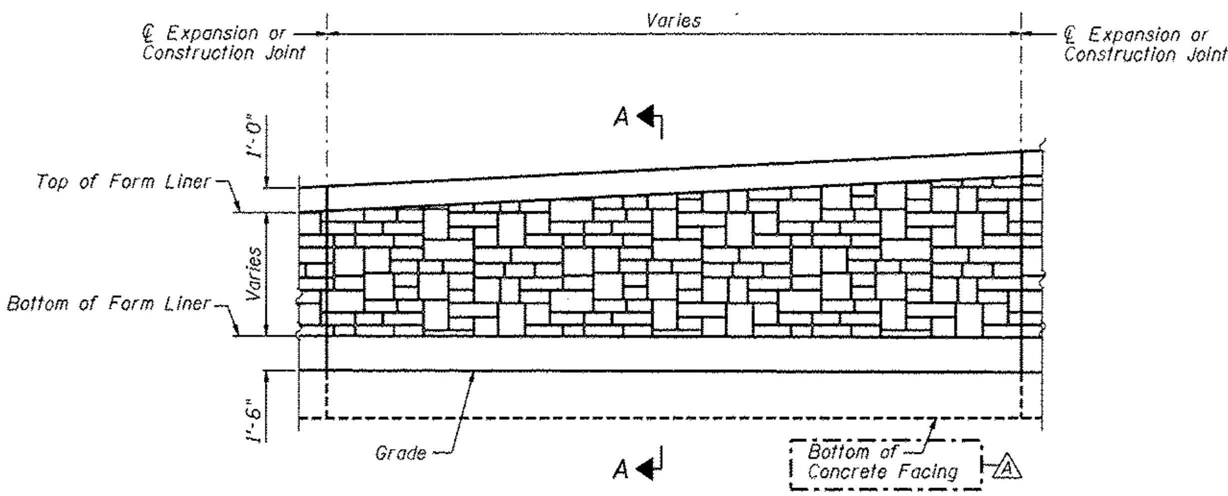
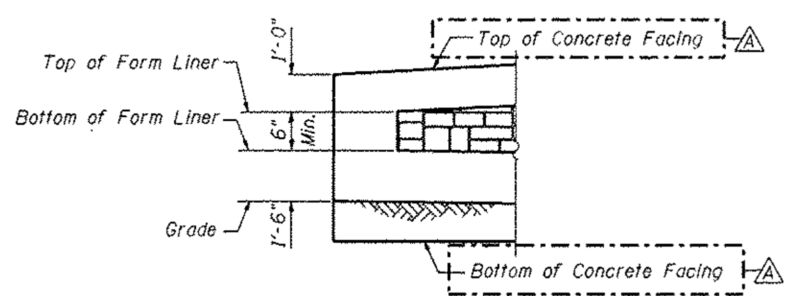
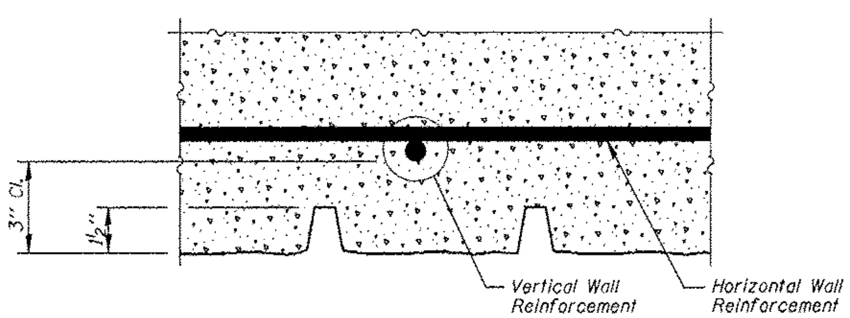


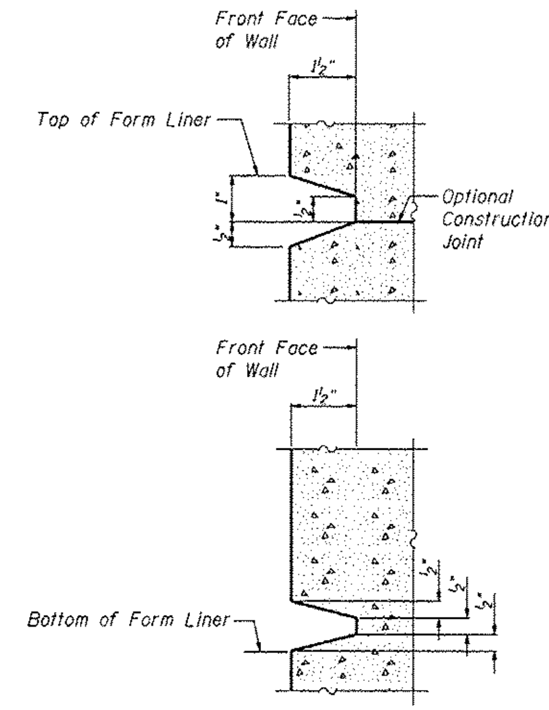
ELEVATION - FORM LINER



END FORM LINER FINISH



PLAN - FORM LINER



SECTION A-A

FORM LINER ELEVATION TABLE

Station	Form Liner Top Elevation	Form Liner Bottom Elevation
829+35.77	None	None
829+29.56	710.36	709.86
829+25.16	711.32	709.00
829+08.61	711.81	708.91
828+81.88	712.61	708.77
828.55.14	713.41	708.63
828+28.38	714.20	708.50
828.01.62	715.00	708.36
827+76.35	715.08	708.07
827+50.82	715.17	707.77
827+30.54	715.25	707.48
827+11.76	715.33	706.86
826+93.49	715.42	706.25
826+75.79 Offset 117.98' Lt.	715.50	705.63
826+77.49 Offset 137.74' Lt.	705.55	705.05
826+77.90 Offset 142.81' Lt.	None	None

FILE NAME = ...\60131-W065-010-ArchFinish.dgn

ZROKA engineering Zroka Engineering, P.C. 4216 North Hermitage Chicago, IL 60613	USER NAME = SAW	DESIGNED - LAS	REVISED △A 12/17/2012 L.A.S.	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	ARCHITECTURAL FINISH DETAILS STRUCTURE NUMBER 022-W065	F.A.P. RTE.: 338/IL 59
		CHECKED - DAZ	REVISED			SECTION: (112 & 113) WRS-5
	PLOT SCALE = 0.1667 '/ IN.	DRAWN - SAW	REVISED			COUNTY: DUPAGE; TOTAL SHEETS: 963; SHEET NO.: 671
	PLOT DATE = 12/12/2012	CHECKED - JLA	REVISED		SHEET NO. SD-10 OF SD-11 SHEETS	CONTRACT NO. 60131 ILLINOIS FED. AID PROJECT

BORING LOG RW-77

SOIL BORING LOG — Geo Services, Inc. Geotechnical, Environmental & Civil Engineering

PAGE 1 of 1 | DATE 4/24/2012 | LOGGED BY RT | GSI JOB No. 09173

ROUTE IL Route 59 (FAP 338) | DESCRIPTION Illinois Route 59-Aurora Avenue/New York Street To Ferry Road

SECTION (112 & 113) WRS-5 | LOCATION SEC. 3, 9-10, 15-16, 21-22 TWP. 38N, RNG. 9E, Naperville Township

COUNTY DuPage | DRILLING METHOD Hollow Stem Auger/Rotary | HAMMER TYPE CME Automatic

STRUCT. NO. 022-W065
Station: 4064+24 to 4066+90
BORING NO. **RW-77**
Station: 4064+38 IL RTE-59
Offset: 131.2' Left
Ground Surface Elev. 705.3

Surface Water Elev. n/a
Stream Bed Elev. n/a
Groundwater Elevation:
First Encounter 681.8 ▼
Upon Completion Cave In ▽
After ___ Hrs. ___

Strata:
- 12.0" TOPSOIL-black — 704.3
- SILTY CLAY-dark brown-very stiff (A-6) Wet — 702.3
- CLAY to CLAY LOAM-brown & gray-very stiff to hard (A-6) — 689.0
- CLAY LOAM-gray-very stiff (A-6) — 670.3
- End Of Boring @ -35.0'
  Hollow Stem Augers
  CME Automatic Hammer

DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)
	AS	–	26
	3		*85*
	3		
	5	2.3B	25
	2		*110*
	3		
-5	5	4.3B	20
	7		
	10		
	12	4.5+P	19
	3		
	4		
-10	6	3.0P	13
	6		
	9		
	9	1.5P	16
	3		
	5		
-15	7	2.5P	11
	4		*130*
	6		
	7	1.8B	9
	8		*131*
	8		
-20	10	3.0B	11

DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)
	3		
	6		
	4	1.5P	14
	2		*122*
	4		
-25	5	1.25B	14
	2		*118*
	4		
	6	1.25B	19
	3		*116*
	6		
-30	7	2.75B	17
	5		
	5		
-35	6	2.5P	15
-40			

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B-Bulge, S-Shear, P-Penetrometer) ST-Shelby Tube Sample VS-Vane Shear Test
The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206) The Unit Dry Weight (pcf) is noted in italics above moist (%)
NR-No Recovery

BORING LOG RW-78

SOIL BORING LOG — Geo Services, Inc. Geotechnical, Environmental & Civil Engineering

PAGE 1 of 1 | DATE 4/24/2012 | LOGGED BY RT | GSI JOB No. 09173

ROUTE IL Route 59 (FAP 338) | DESCRIPTION Illinois Route 59-Aurora Avenue/New York Street To Ferry Road

SECTION (112 & 113) WRS-5 | LOCATION SEC. 3, 9-10, 15-16, 21-22 TWP. 38N, RNG. 9E, Naperville Township

COUNTY DuPage | DRILLING METHOD Hollow Stem Auger/Rotary | HAMMER TYPE CME Automatic

STRUCT. NO. 022-W065
Station: 4064+24 to 4066+90
BORING NO. **RW-78**
Station: 4065+76 IL RTE-59
Offset: 132.2' Left
Ground Surface Elev. 706.2

Surface Water Elev. n/a
Stream Bed Elev. n/a
Groundwater Elevation:
First Encounter 693.2 ▼
Upon Completion 686.2 ▽
After ___ Hrs. ___

Strata:
- 12.0" SAND & GRAVEL (Fill) — 705.2
- CLAY-brown & gray-very stiff to hard (A-6) — 695.7
- CLAY-gray-very stiff (A-6) — ▼ 693.2
- SILTY LOAM-brown & gray-medium dense to dense (A-4) — 686.2
- CLAY LOAM-gray-very stiff to hard (A-6) — 683.2
- SANDY LOAM-gray-medium dense (A-2) — 680.7
- CLAY LOAM-gray-stiff (A-6) — 678.2
- SAND & GRAVEL-gray-medium dense (A-1) — 674.2
- CLAY-gray-stiff (A-6) — 671.2
- End Of Boring @ -35.0'
  Hollow Stem Augers
  CME Automatic Hammer

DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)
	AS	–	10
	3		*112*
	4		
	5	3.0B	17
	2		*111*
	4		
-5	7	2.5B	16
	4		*110*
	7		
	11	6.7B	19
	3		*111*
	7		
-10	50/4"	7.8B	19
	5		*120*
	7		
	12	2.8B	15
	8		
	26		
-15	17	NP	15
	9		
	16		
	12	NP	17
	7		
	8		
-20	11	4.5+P	9

DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)
	3		*129*
	4		
	6	2.3B	11
	2		
	5		
-25	7	–	14
	4		*130*
	6		
	8	1.8B	11
	6		
	7		
-30	7	NP	18
	2		*113*
	6		
-35	9	1.8B	18
-40			

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B-Bulge, S-Shear, P-Penetrometer) ST-Shelby Tube Sample VS-Vane Shear Test
The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206) The Unit Dry Weight (pcf) is noted in italics above moist (%)
NR-No Recovery

BORING LOG RW-79

SOIL BORING LOG — Geo Services, Inc. Geotechnical, Environmental & Civil Engineering

PAGE 1 of 1 | DATE 4/24/2012 | LOGGED BY RT | GSI JOB No. 09173

ROUTE IL Route 59 (FAP 338) | DESCRIPTION Illinois Route 59-Aurora Avenue/New York Street To Ferry Road

SECTION (112 & 113) WRS-5 | LOCATION SEC. 3, 9-10, 15-16, 21-22 TWP. 38N, RNG. 9E, Naperville Township

COUNTY DuPage | DRILLING METHOD Hollow Stem Auger/Rotary | HAMMER TYPE CME Automatic

STRUCT. NO. 022-W065
Station: 4064+24 to 4066+90
BORING NO. **RW-79**
Station: 4066+53 IL RTE-59
Offset: 118.0' Left
Ground Surface Elev. 707.4

Surface Water Elev. n/a
Stream Bed Elev. n/a
Groundwater Elevation:
First Encounter 681.9 ▼
Upon Completion ___
After ___ Hrs. ___

Strata:
- SANDY TOPSOIL with Gravel-black — 706.9
- CLAY-brown & gray-very stiff to hard (A-6) — 696.9
- SILTY LOAM-brown & gray-medium dense (A-4) — 694.4
- CLAY to CLAY LOAM-gray-very stiff to hard (A-6) — ▼ 681.9
- SAND-gray-loose (A-3) — 675.4
- CLAY-gray-very stiff (A-6) — 672.4
- End Of Boring @ -35.0'
  Hollow Stem Augers
  CME Automatic Hammer

DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)
	AS	–	19
	5		*116*
	6		
	8	3.8S	15
	3		
	6		
-5	7	4.5+P	16
	5		*109*
	6		
	8	5.0B	21
	5		*107*
	8		
-10	10	4.9B	21
	2		
	4		
	9	NP	18
	5		
	9		
-15	8	4.0P	9
	6		
	7		
	8	4.5P	10
	6		
	8		
-20	8	4.5+P	10

DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)
	5		*113*
	5		
	7	3.3B	18
	3		*128*
	8		
-25	10	2.8B	12
	0		
	1		
	4	NP	17
	2		
	2		
-30	4	NP	16
	3		*114*
	7		
-35	8	3.2B	18
-40			

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B-Bulge, S-Shear, P-Penetrometer) ST-Shelby Tube Sample VS-Vane Shear Test
The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206) The Unit Dry Weight (pcf) is noted in italics above moist (%)
NR-No Recovery

FILE NAME = ...\60131-W065-211-BoringLogs.dgn

ZROKA engineering — Zroka Engineering, P.C. 4216 North Hermitage Chicago, IL 60613	USER NAME = SAW	DESIGNED - LAS	REVISED △A 12/17/2012 L.A.S.
		CHECKED - DAZ	REVISED
	PLOT SCALE = 2.00 ' / IN.	DRAWN - SAW	REVISED
	PLOT DATE = 12/12/2012	CHECKED - JLA	REVISED

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

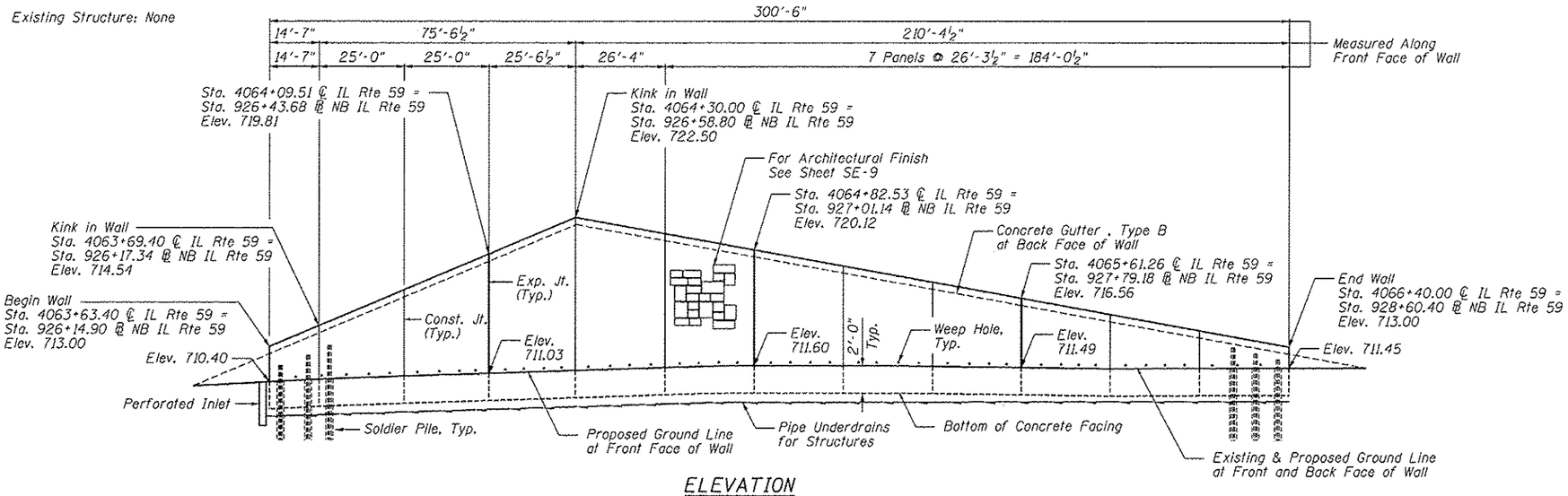
BORING LOGS
STRUCTURE NUMBER 022-W065
SHEET NO. SD-11 OF SD-11 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
338/IL 59	(112 & 113) WRS-5	DUPAGE	963	672
		CONTRACT NO. 60131		
		ILLINOIS FED. AID PROJECT		

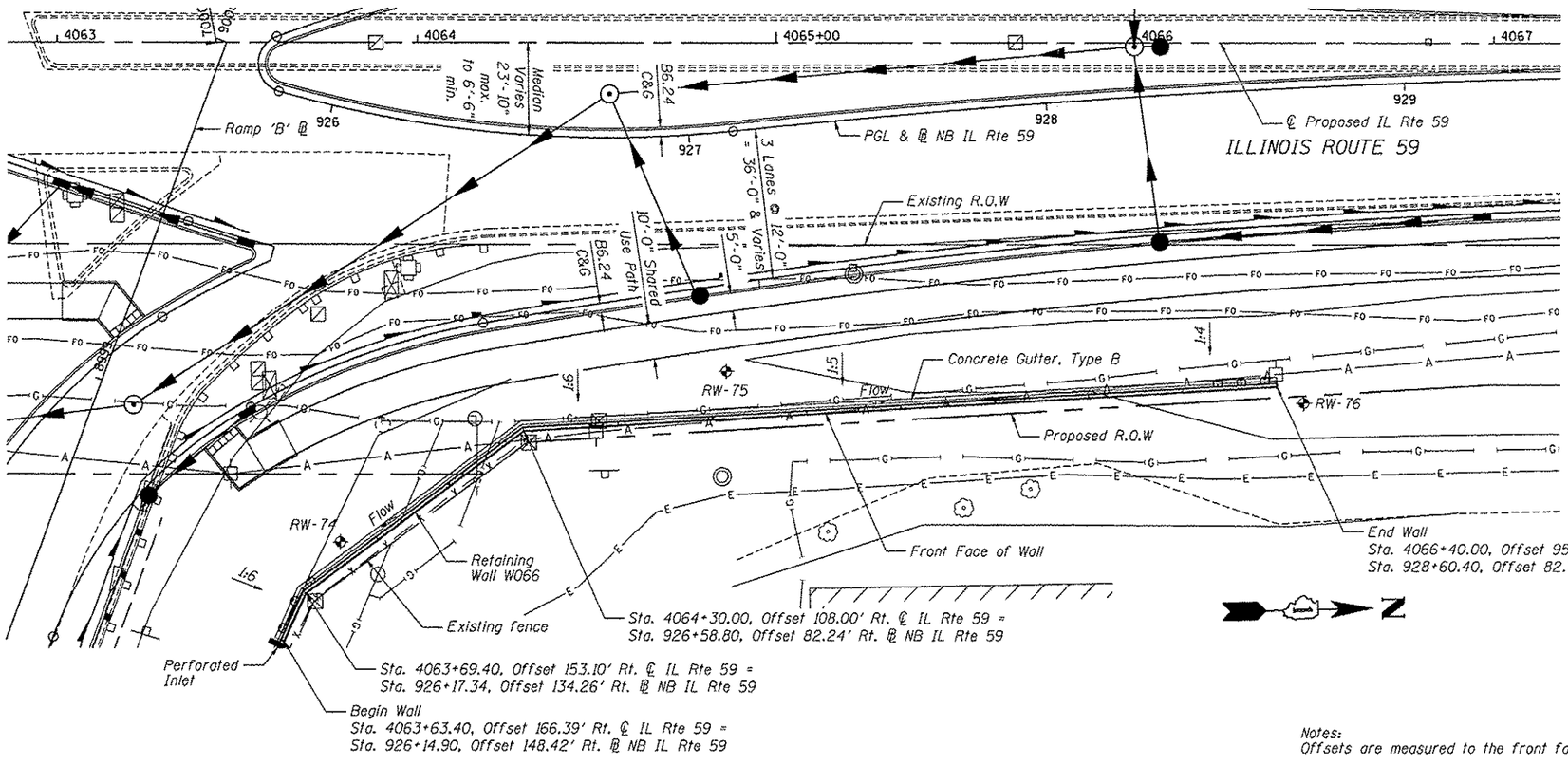
△A

Bench Mark: DuPage County survey disk at north end of the west bridge wall, IL Rte 59 over Interstate Route 88. Elev. 731.43

Existing Structure: None



ELEVATION



PLAN

INDEX OF SHEETS

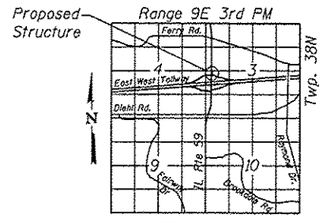
STATE OF ILLINOIS DEBORAH A. ZROKA 081-005152 LICENSED STRUCTURAL ENGINEER

Signature 10-15-12 Date

November 30, 2014 Expires

APPROVED
For Structural Adequacy Only

D. Carl Puzey 10/18
Engineer of Bridges & Structures



LOCATION SKETCH

Notes:
Offsets are measured to the front face of the wall.

Existing utilities including gas, fiber optic and electric aerial lines to be adjusted or relocated as required.

GENERAL PLAN
IL RTE 59 FAP RTE 338
SECTION (112 & 113) WRS-5
DUPAGE COUNTY
STA. 4063+63.40 TO STA. 4066+40.00
SN 022-W066

FILE NAME = $FILE$

ZROKA engineering — Zroka Engineering, P.C. 4216 North Hermitage Chicago, IL 60613	USER NAME = $USER$	DESIGNED - LAS	REVISED	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	GENERAL PLAN STRUCTURE NUMBER 022-W066	F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
		CHECKED - DAZ	REVISED			338/IL 59	(112 & 113) WRS-5	DUPAGE	963	673
	PLOT SCALE = $SCALE$	DRAWN - SAW	REVISED					CONTRACT NO. 60131		
	DATE = 10/15/2012	CHECKED - JLA	REVISED		SHEET NO. SE-1 OF SE-11 SHEETS			ILLINOIS FED. AID PROJECT		

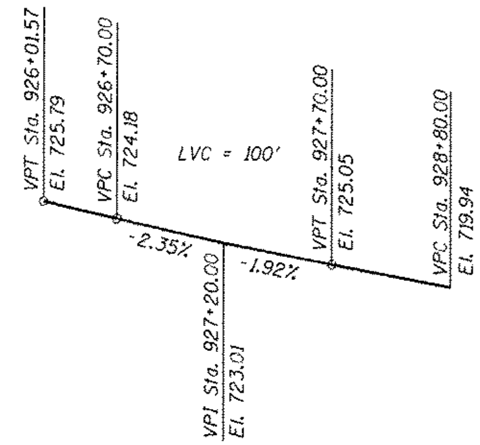
DESIGN SPECIFICATIONS

2012 AASHTO LRFD Bridge Design Specifications 6th Edition with 2012 Interims

DESIGN STRESSES

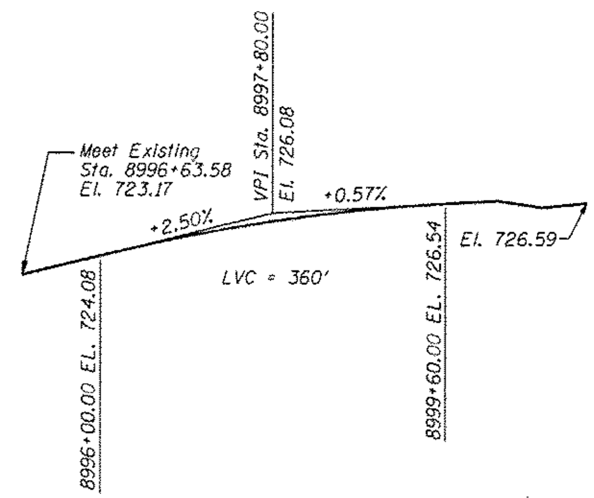
FIELD UNITS

f'_c = 3,500 psi
f_y = 60,000 psi (reinforcement)
f_y = 36,000 psi (M270 Grade 36)



℄ NB IL ROUTE 59 - PROPOSED PROFILE GRADE LINE

(along edge of pavement proposed NB IL Route 59)



℄ RAMP B - PROPOSED PROFILE GRADE LINE

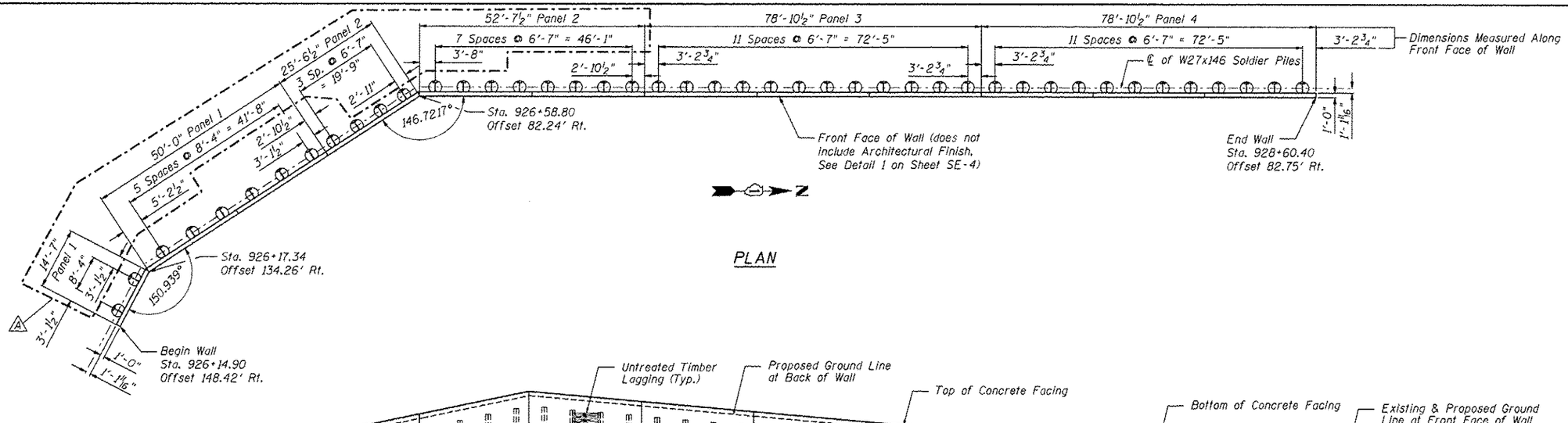
(along ℄ proposed Ramp B)

GENERAL NOTES

1. Reinforcement bars designated (E) shall be epoxy coated.
2. The Contractor is responsible for the design and performance of the lagging using no less than 3" nominal rough-sawn thickness and timber with a minimum allowable bending stress of 1000 psi.

TOTAL BILL OF MATERIAL

ITEM	UNIT	TOTAL
Structure Excavation	Cu. Yd.	177
Concrete Structures	Cu. Yd.	105.8
Stud Shear Connectors	Each	345
Reinforcement Bars, Epoxy Coated	Pound	14,760
Geocomposite Wall Drain	Sq. Yd.	137
Untreated Timber Lagging	Sq. Ft.	1,828
Furnishing Soldier Piles (W Section)	Foot	1,084
Pipe Underdrains for Structures, 4"	Foot	300
Drilling and Setting Soldier Piles (In Soil)	Cu. Ft.	6,119
Form Liner Textured Surface	Sq. Ft.	1,197
Granular Backfill for Structures	Cu. Yd.	215



PILE SUMMARY

Pile No.	Station	Offset to ℄ Pile	Pile Designation	Length	Bottom Elevation	Top Elevation	Pile No.	Station	Offset to ℄ Pile	Pile Designation	Length	Bottom Elevation	Top Elevation	Pile No.	Station	Offset to ℄ Pile	Pile Designation	Length	Bottom Elevation	Top Elevation
1	926+13.96	144.89	W27x146	23'-0"	688.33	711.33	16	926+77.47	78.07	W27x146	32'-0"	687.78	719.78	31	927+69.14	79.75	W27x146	25'-0"	690.34	715.34
2	926+15.33	136.78	W27x146	23'-0"	689.54	712.54	17	926+82.80	77.74	W27x146	32'-0"	687.48	719.48	32	927+75.91	79.91	W27x146	25'-0"	690.04	715.04
3	926+18.77	129.00	W27x146	23'-0"	690.42	713.42	18	926+88.14	77.51	W27x146	32'-0"	687.18	719.18	33	927+82.55	80.06	W27x146	18'-0"	696.75	714.75
4	926+22.95	122.96	W27x146	23'-0"	691.30	714.30	19	926+93.48	77.38	W27x146	32'-0"	686.88	718.88	34	927+89.32	80.19	W27x146	18'-0"	696.45	714.45
5	926+27.23	117.01	W27x146	23'-0"	692.18	715.18	20	926+98.82	77.36	W27x146	32'-0"	686.59	718.59	35	927+96.10	80.30	W27x146	18'-0"	696.15	714.15
6	926+31.63	111.12	W27x146	23'-0"	693.05	716.05	21	927+03.78	77.44	W27x146	25'-0"	693.31	718.31	36	928+02.87	80.40	W27x146	18'-0"	695.86	713.86
7	926+36.15	105.32	W27x146	23'-0"	693.93	716.93	22	927+09.12	77.62	W27x146	25'-0"	693.01	718.01	37	928+09.64	80.49	W27x146	18'-0"	695.56	713.56
8	926+40.79	99.60	W27x146	23'-0"	694.81	717.81	23	927+15.01	77.90	W27x146	25'-0"	692.72	717.72	38	928+16.42	80.55	W27x146	18'-0"	695.26	713.26
9	926+44.20	95.54	W27x146	32'-0"	686.44	718.44	24	927+21.77	78.19	W27x146	25'-0"	692.42	717.42	39	928+23.19	80.61	W27x146	18'-0"	694.97	712.97
10	926+48.02	91.13	W27x146	32'-0"	687.14	719.14	25	927+28.53	78.46	W27x146	25'-0"	692.12	717.12	40	928+29.97	80.64	W27x146	18'-0"	694.67	712.67
11	926+51.93	86.78	W27x146	32'-0"	687.83	719.83	26	927+35.30	78.71	W27x146	25'-0"	691.82	716.82	41	928+36.74	80.66	W27x146	18'-0"	694.37	712.37
12	926+55.91	82.49	W27x146	32'-0"	688.53	720.53	27	927+42.07	78.95	W27x146	25'-0"	691.53	716.53	42	928+43.52	80.67	W27x146	18'-0"	694.07	712.07
13	926+61.54	79.71	W27x146	32'-0"	688.67	720.67	28	927+48.83	79.18	W27x146	25'-0"	691.23	716.23	43	928+50.29	80.66	W27x146	18'-0"	693.78	711.78
14	926+66.84	79.06	W27x146	32'-0"	688.37	720.37	29	927+55.60	79.38	W27x146	25'-0"	690.93	715.93	44	928+57.07	80.63	W27x146	18'-0"	693.48	711.48
15	926+72.14	78.52	W27x146	32'-0"	688.07	720.07	30	927+62.37	79.58	W27x146	25'-0"	690.64	715.64							

BILL OF MATERIAL

Item	Unit	Quantity
Furnishing Soldier Piles (W Section)	Foot	1,084
Drilling and Setting Soldier Piles (In Soil)	Cu Ft	6,119
Untreated Timber Lagging	Sq Ft	1,828
Stud Shear Connectors	Each	345

Note: All offsets are to the right of ℄ NB IL Rte 59

ZROKA engineering
Zroka Engineering, P.C.
4216 North Hermitage
Chicago, IL 60613

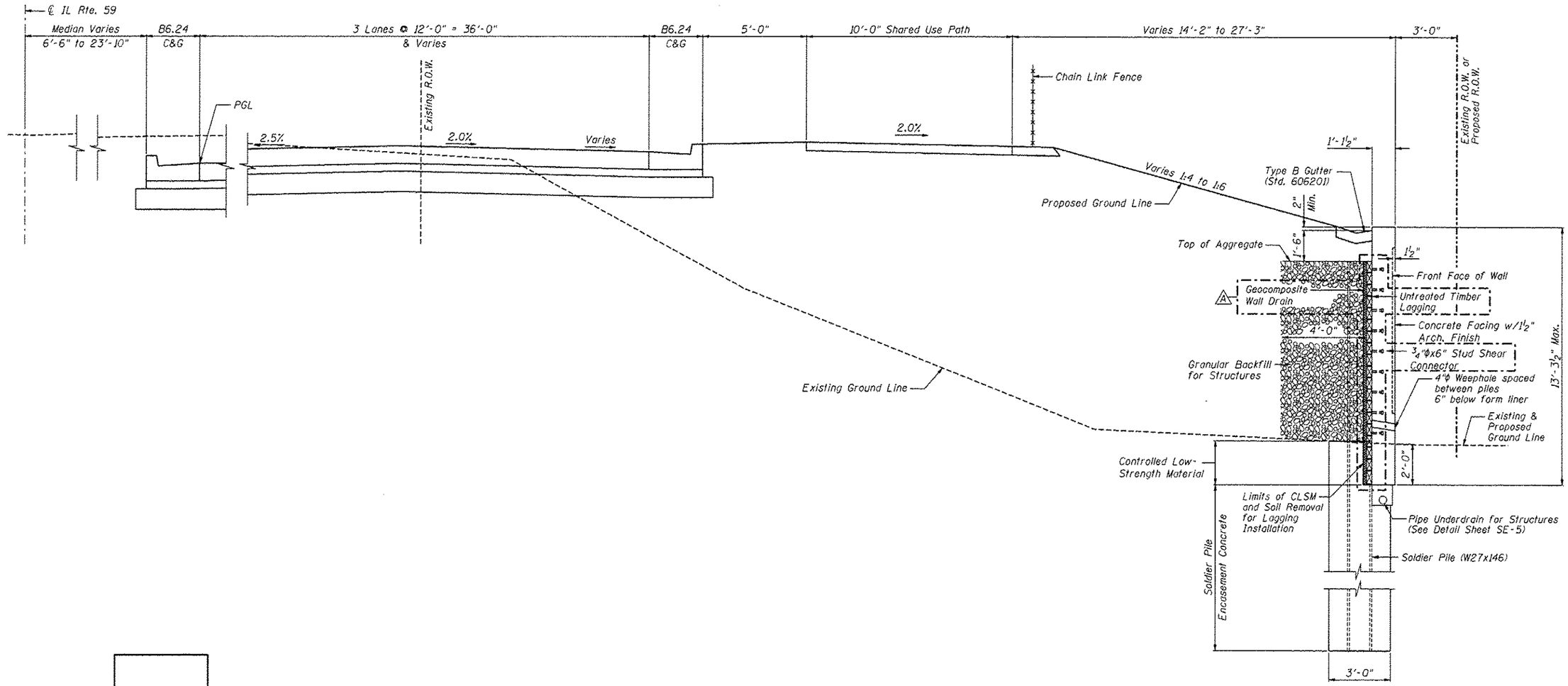
USER NAME = SAW	DESIGNED - LAS	REVISED ⚠ 12/17/2012 L.A.S.
	CHECKED - DAZ	REVISED
PLOT SCALE = 26.667 ' / IN.	DRAWN - SAW	REVISED
PLOT DATE = 12/12/2012	CHECKED - JLA	REVISED

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

SOLDIER PILE LAYOUT
STRUCTURE NUMBER 022-W066
SHEET NO. SE-3 OF SE-11 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
338/IL 59	(112 & 113) WRS-5	DUPAGE	963	675
		CONTRACT NO. 60131		
	ILLINOIS FED. AID PROJECT			

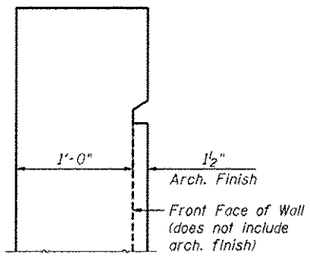
FILE NAME = ...\60131-W066-003-Pile Layout.dgn



TYPICAL WALL SECTION

Sta. 926+14.90 to Sta. 928+60.40
(Looking North)

Note:
Granular Backfill for Structures shall be compacted. A



DETAIL 1

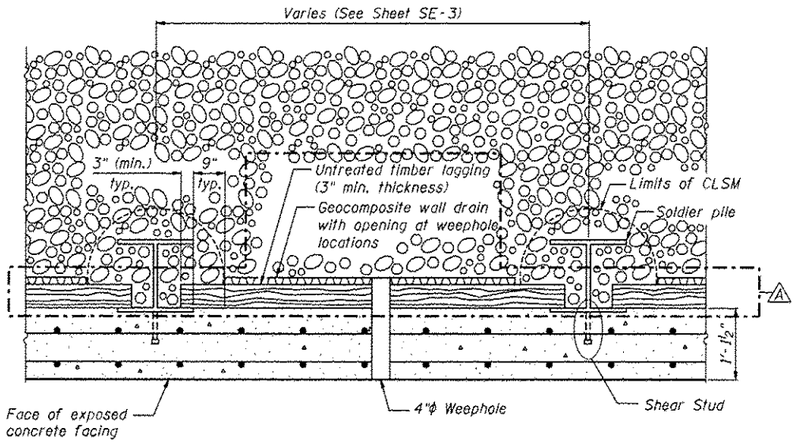
A

FILE NAME = ...\60131-W066-R04-TypSec.dgn

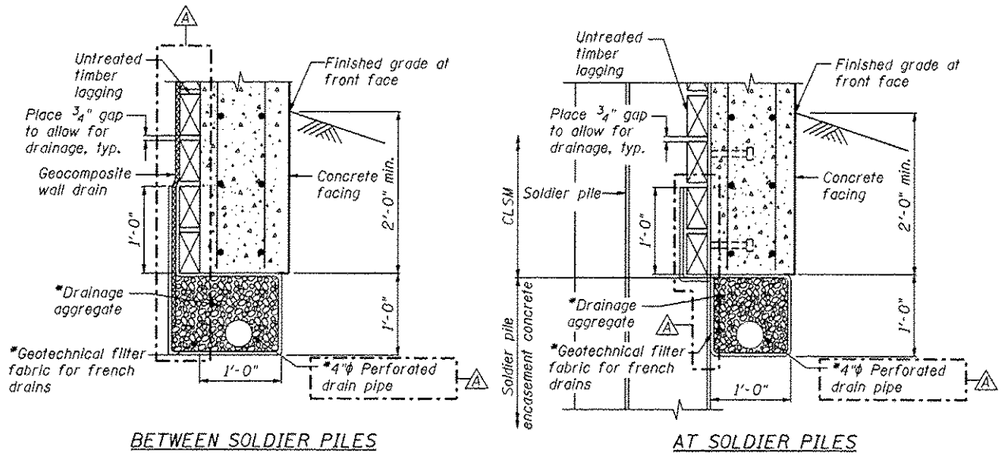
Zroka Engineering, P.C. 4216 North Hermitage Chicago, IL 60613	USER NAME = SAW	DESIGNED - LAS	REVISED A 12/17/2012 L.A.S.	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION
		CHECKED - DAZ	REVISED	
	PLOT SCALE = 5.00 ' / IN.	DRAWN - SAW	REVISED	
	PLOT DATE = 12/12/2012	CHECKED - JLA	REVISED	

TYPICAL SECTION
STRUCTURE NUMBER 022-W066
SHEET NO. SE-4 OF SE-11 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
338/IL 59	(112 & 113) WRS-5	DUPAGE	963	676
		CONTRACT NO. 60131		
		ILLINOIS FED. AID PROJECT		



SECTION THRU DRILLED SOLDIER PILE WALL

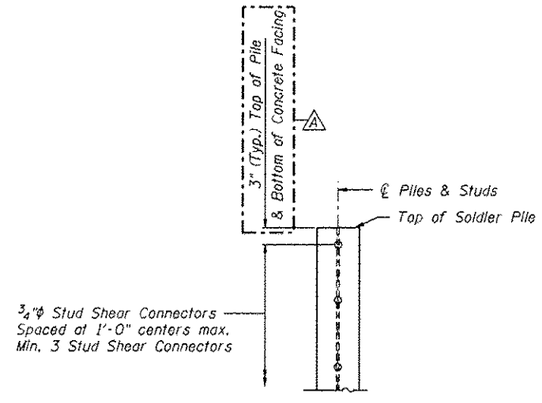


BETWEEN SOLDIER PILES

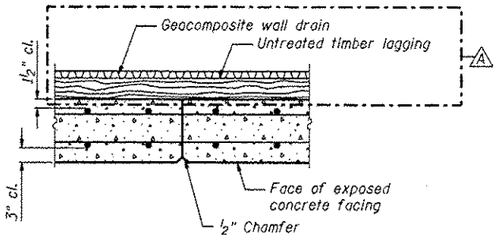
AT SOLDIER PILES

PIPE UNDERDRAIN DETAIL

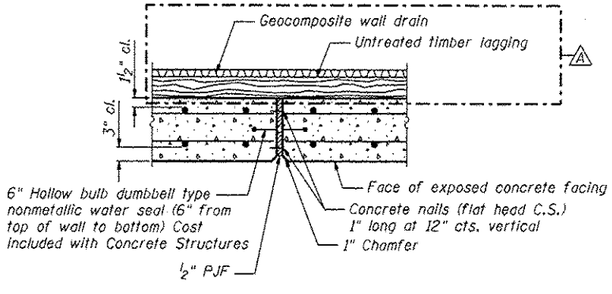
*Included in the cost of "Pipe Underdrains for Structures"



DETAIL OF SHEAR STUD PLACEMENT



CONSTRUCTION JOINT DETAIL



EXPANSION JOINT DETAIL

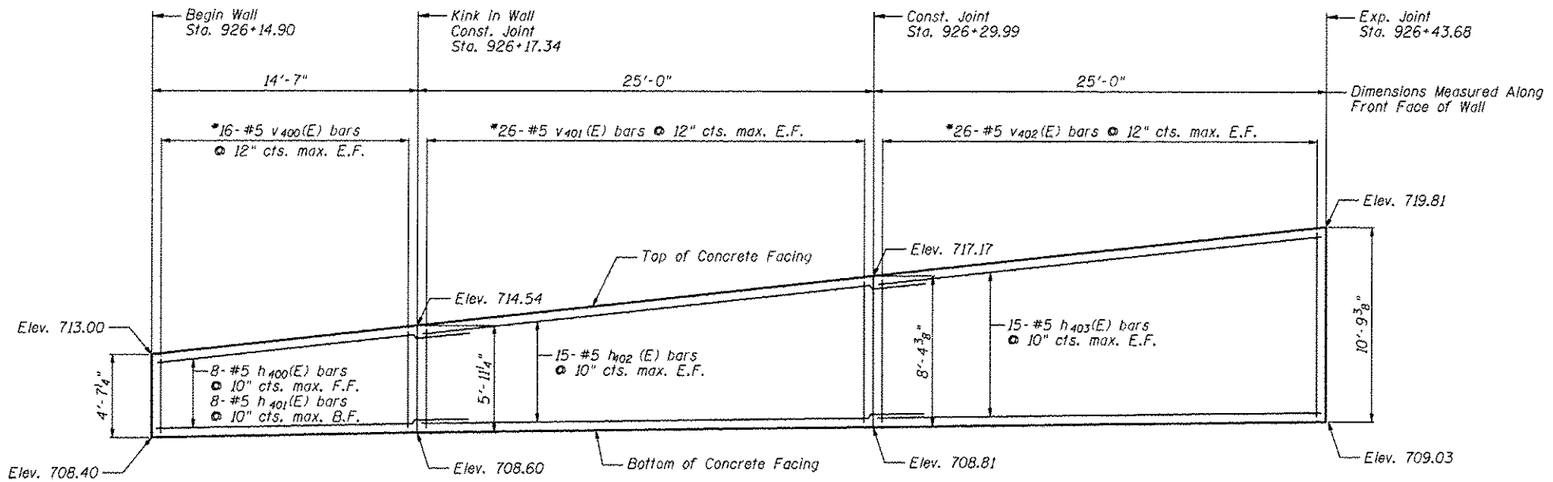
FILE NAME = ...\60131-W066-085-Details.dgn

ZROKA engineering — Zroka Engineering, P.C. 4216 North Hermitage Chicago, IL 60613	USER NAME = SAW	DESIGNED - LAS	REVISED ⚠ 12/17/2012 L.A.S.
		CHECKED - DAZ	REVISED
	PLOT SCALE = 6.00 ' / IN.	DRAWN - SAW	REVISED
	PLOT DATE = 12/12/2012	CHECKED - JLA	REVISED

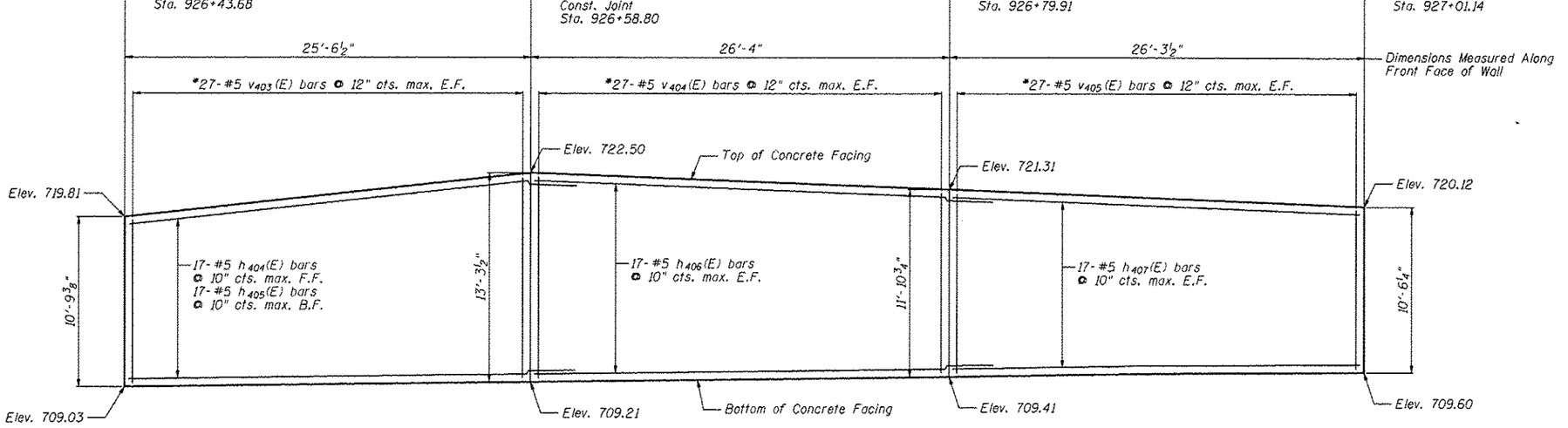
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

DETAILS
STRUCTURE NUMBER 022-W066
SHEET NO. SE-5 OF SE-11 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
338/IL 59	(112 & 113) WRS-5	DUPAGE	963	677
		CONTRACT NO. 60131		
		ILLINOIS FED. AID PROJECT		



ELEVATION



ELEVATION

Notes:

Minimum lap for #5 bar is 3'-8".

Space reinforcement in wall to miss shear studs.

* signifies cut bar. Order per length on Bill of Material. Cut as shown in Cutting Diagram and use half of bars in each face.

See Sheet SE-8 for Concrete Facing Details and Bill of Material.

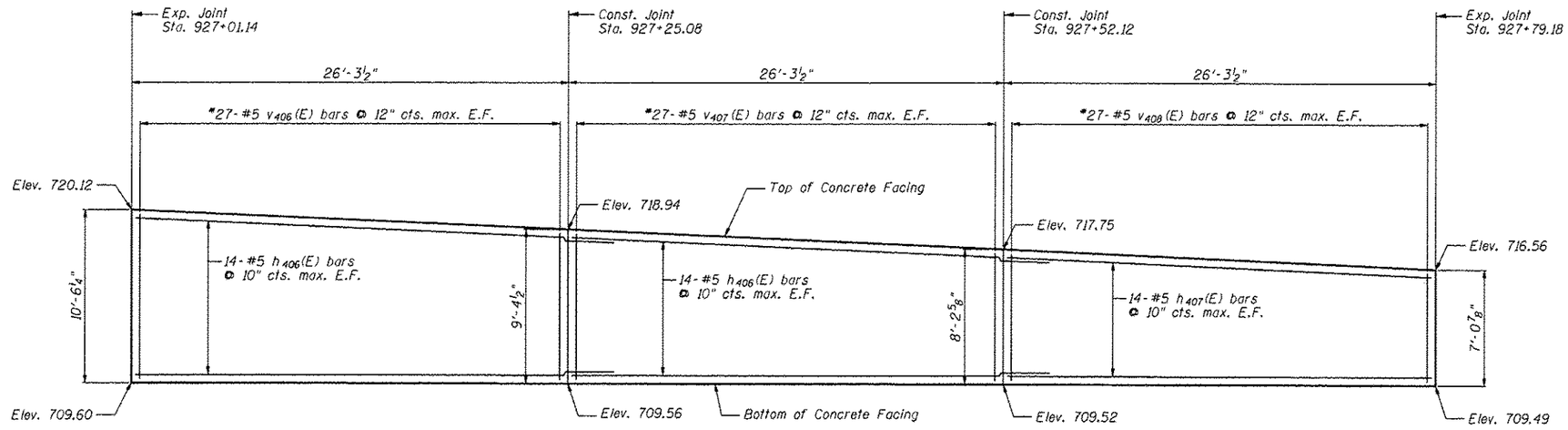
FILE NAME = ...\60131-W066-888-ConcFacing1.dgn

ZROKA engineering — Zroka Engineering, P.C. 4215 North Hermitage Chicago, IL 60613	USER NAME = SAW	DESIGNED - LAS	REVISED ⚠ 12/17/2012 L.A.S.
		CHECKED - DAZ	REVISED
	PLOT SCALE = 8.0000 ' / IN.	DRAWN - SAW	REVISED
	PLOT DATE = 12/12/2012	CHECKED - JLA	REVISED

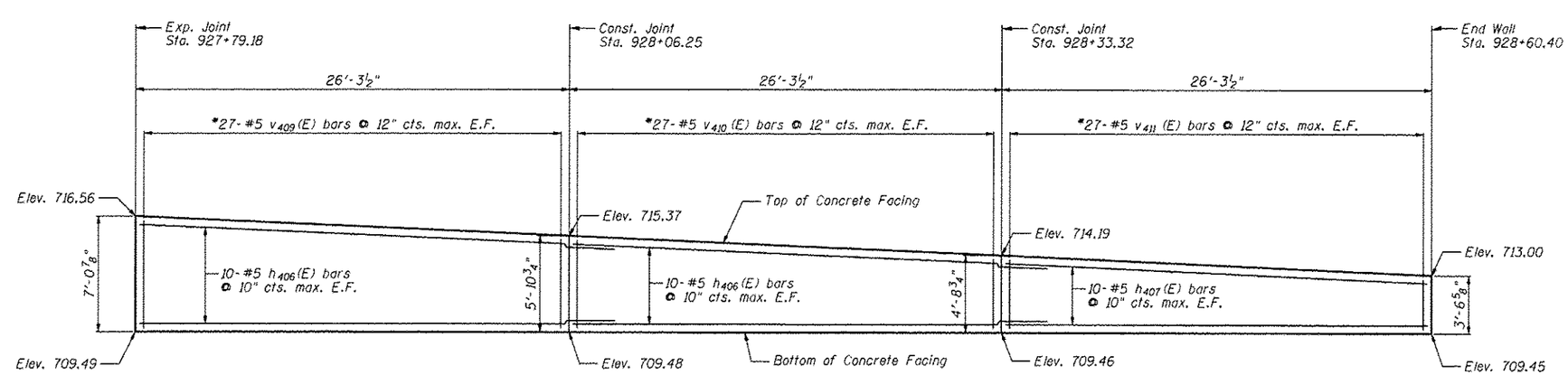
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

CONCRETE FACING 1
STRUCTURE NUMBER 022-W066
SHEET NO. SE-6 OF SE-11 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
338/IL 59	(112 & 113) WRS-5	DUPAGE	963	678
		CONTRACT NO. 60131		
	ILLINOIS FED. AID PROJECT			



ELEVATION



ELEVATION

Notes:

Minimum lap for #5 bar is 3'-8".

Space reinforcement in wall to miss shear studs.

* signifies cut bar. Order per length on Bill of Material. Cut as shown in Cutting Diagram and use half of bars in each face.

See Sheet SE-8 for Concrete Facing Details and Bill of Material.

FILE NAME = ...\60131-W066-087-Concfacing2.dgn

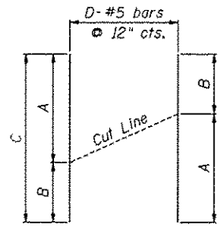
ZROKA engineering
Zroka Engineering, P.C.
4216 North Hermitage
Chicago, IL 60613

USER NAME = SAW	DESIGNED - LAS	REVISED ⚠ 12/17/2012 L.A.S.
	CHECKED - DAZ	REVISED
PLOT SCALE = 8.0000 ' / IN.	DRAWN - SAW	REVISED
PLOT DATE = 12/12/2012	CHECKED - JLA	REVISED

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

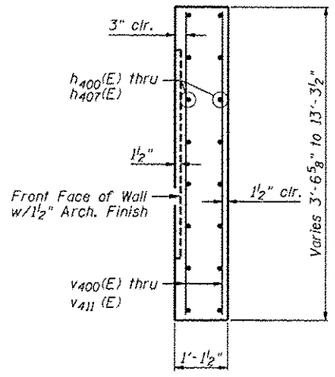
CONCRETE FACING 2
STRUCTURE NUMBER 022-W066
SHEET NO. SE-7 OF SE-11 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
33B/IL 59	(112 & 113) WRS-5	DUPAGE	963	679
		CONTRACT NO. 60131		
		ILLINOIS FED. AID PROJECT		

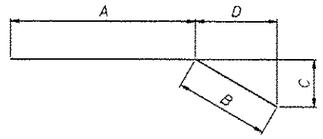


CUTTING DIAGRAM

Bar	A	B	C	D
v400(E)	4'-4"	5'-8"	10'-0"	16
v401(E)	5'-8"	8'-1"	13'-9"	26
v402(E)	8'-1"	10'-6"	18'-7"	26
v403(E)	10'-6"	13'-0"	23'-6"	27
v404(E)	13'-0"	11'-7"	24'-7"	27
v405(E)	11'-7"	10'-3"	21'-10"	27
v406(E)	10'-3"	9'-1"	19'-4"	27
v407(E)	9'-1"	7'-11"	17'-0"	27
v408(E)	7'-11"	6'-9"	14'-8"	27
v409(E)	6'-9"	5'-7"	12'-4"	27
v410(E)	5'-7"	4'-5"	10'-0"	27
v411(E)	4'-5"	3'-3"	7'-8"	27



SECTION THRU CONCRETE FACING



h400(E), h401(E), h404(E) & h405(E) BARS

BAR BEND TABLE

Bar	A	B	C	D
h400(E)	14'-5"	3'-10"	1'-10"	3'-4"
h401(E)	14'-8"	3'-10"	1'-10"	3'-4"
h404(E)	25'-5"	3'-10"	2'-1"	3'-2½"
h405(E)	25'-8"	3'-10"	2'-1"	3'-2½"

BILL OF MATERIAL

Bar	No.	Size	Length	Shape
h400(E)	8	#5	18'-3"	
h401(E)	8	#5	18'-6"	
h402(E)	30	#5	29'-0"	
h403(E)	30	#5	24'-8"	
h404(E)	17	#5	29'-3"	
h405(E)	17	#5	29'-6"	
h406(E)	130	#5	30'-0"	
h407(E)	82	#5	26'-0"	
v400(E)	30	#5	10'-0"	
v401(E)	26	#5	13'-9"	
v402(E)	26	#5	18'-7"	
v403(E)	27	#5	23'-6"	
v404(E)	27	#5	24'-7"	
v405(E)	27	#5	21'-10"	
v406(E)	27	#5	19'-4"	
v407(E)	27	#5	17'-0"	
v408(E)	27	#5	14'-8"	
v409(E)	27	#5	12'-4"	
v410(E)	27	#5	10'-0"	
v411(E)	27	#5	7'-8"	

Item	Unit	Quantity
Concrete Structures	Cu. Yd.	105.8
Reinforcement Bars, Epoxy Coated	Pound	14,760
Pipe Underdrains for Structures, 4"	Foot	300 (A)
Geocomposite Wall Drain	Sq. Yd.	137

(A)

FILE NAME = ...\60131-W066-808-ConcFacingDetails.dgn

ZROKA engineering
Zroka Engineering, P.C.
4216 North Hermitage
Chicago, IL 60613

USER NAME = SAW	DESIGNED - LAS	REVISED (A) 12/17/2012 L.A.S.
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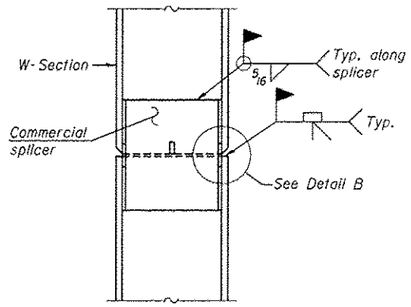
PLOT SCALE = 8.0000 ' / IN.	DRAWN - SAW	REVISED
PLOT DATE = 12/12/2012	CHECKED - JLA	REVISED

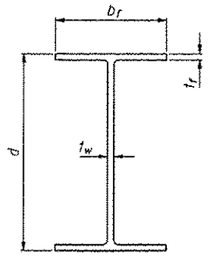
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

CONCRETE FACING DETAILS
STRUCTURE NUMBER 022-W066
SHEET NO. SE-8 OF SE-11 SHEETS

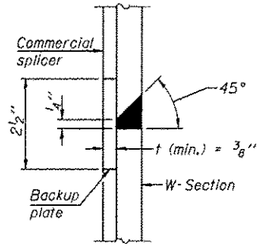
F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
338/IL 59	(112 & 113) WRS-5	DUPAGE	963	680
		CONTRACT NO. 60131		
	ILLINOIS FED. AID PROJECT			



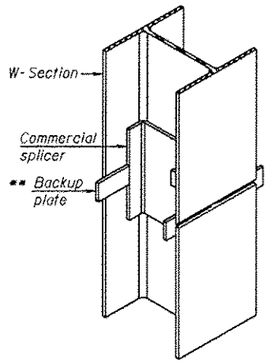
ELEVATION



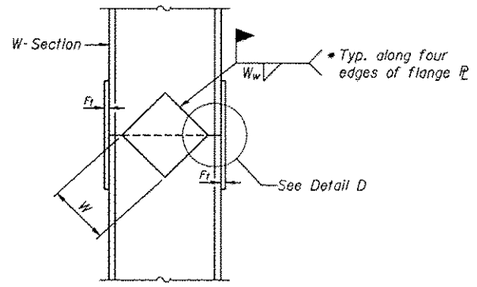
Designation	Depth d	Flange width b_f	Flange thickness t_f	Web thickness t_w	Encasement diameter A
W27x146	27 3/8"	14"	1"	5/8"	36"



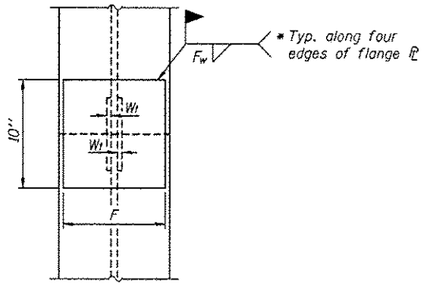
DETAIL "B"



ISOMETRIC VIEW

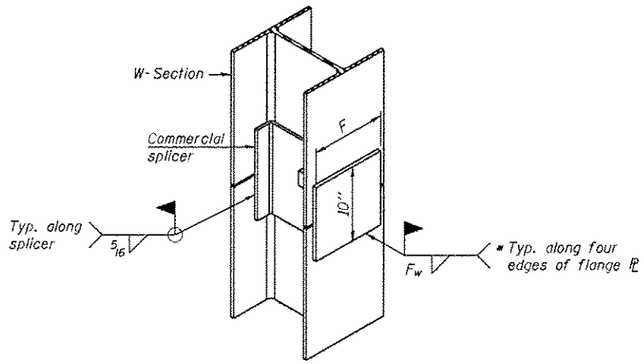


ELEVATION



END VIEW

WELDED COMMERCIAL SPLICE



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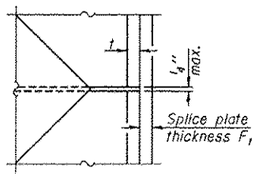


DETAIL D

Designation	F	F_1	F_w	W	W_1	W_w
W27x146	12"	1¼"	3/4"	16 3/4"	5/8"	3/8"

WELDED PLATE FIELD SPLICE

WELDED COMMERCIAL SPLICE ALTERNATE

* Interrupt welds ¼" from end of web and/or each flange.

** Remove portions of backup plates that extend outside the flanges.

Note:
The steel W-Sections shall be according to AASHTO M270 Grade 36.

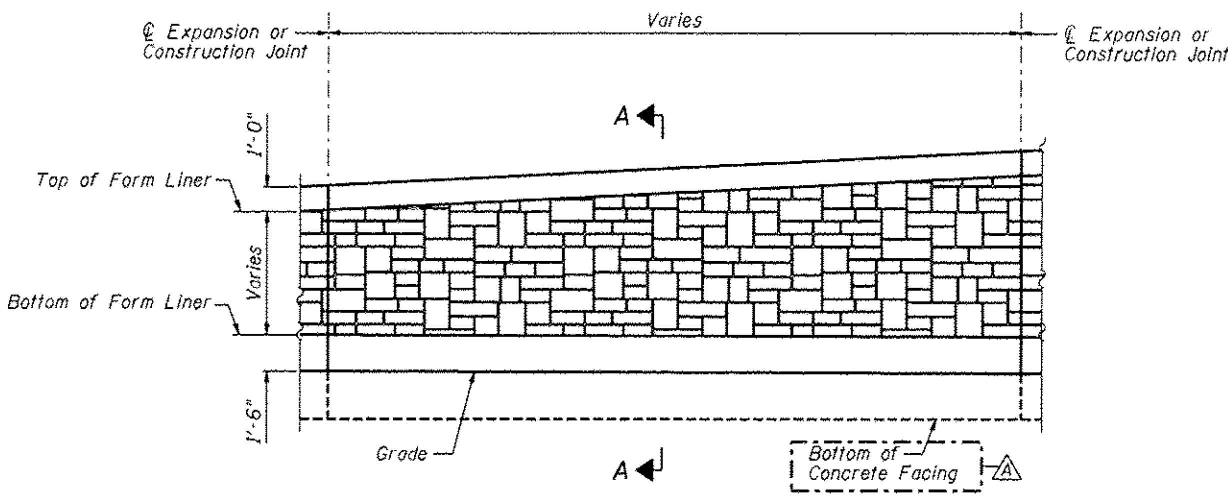
ZROKA engineering
Zroka Engineering, P.C.
4216 North Hermitage
Chicago, IL 60613

USER NAME = SAW	DESIGNED - LAS	REVISED ⚠4 12/17/2012 L.A.S.
	CHECKED - DAZ	REVISED
PLOT SCALE = 0.1667 ' / IN.	DRAWN - SAW	REVISED
PLOT DATE = 12/12/2012	CHECKED - JLA	REVISED

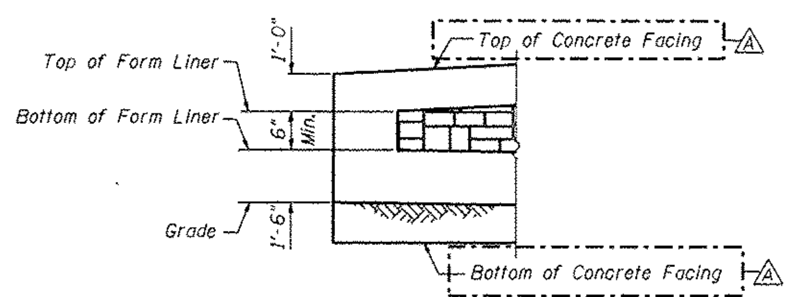
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

PILE SPLICE DETAILS
STRUCTURE NUMBER 022-W066
SHEET NO. SE-9 OF SE-11 SHEETS

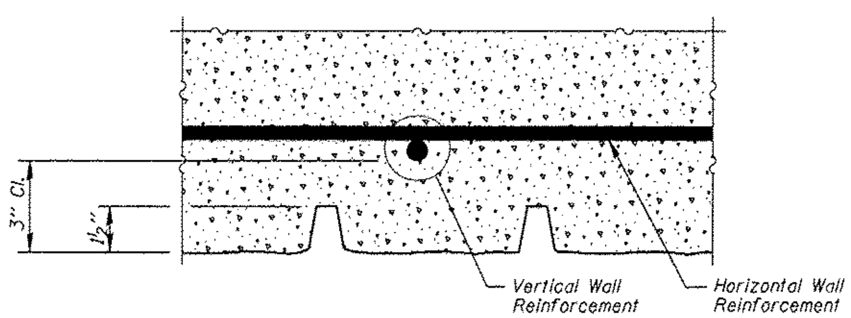
F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
338/IL 59	(1)2 & 11)3 WRS-5	DUPAGE	963	681
		CONTRACT NO. 60131		
	ILLINOIS	FED. AID PROJECT		



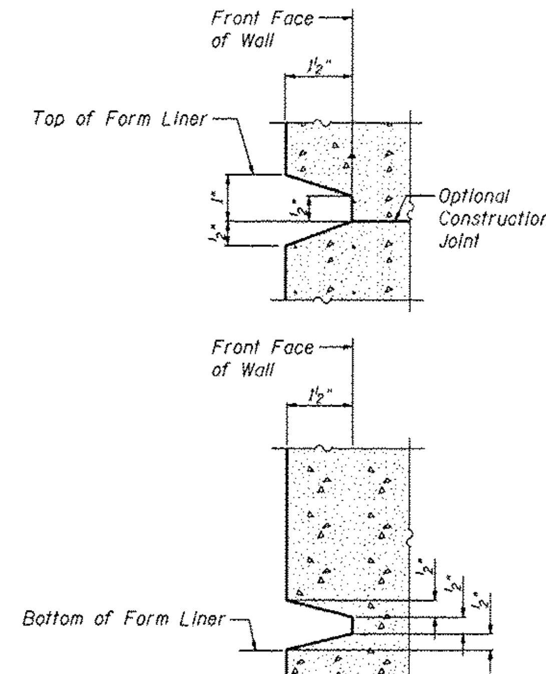
ELEVATION - FORM LINER



END FORM LINER FINISH



PLAN - FORM LINER



SECTION A-A

FORM LINER ELEVATION TABLE

Station	Form Liner Top Elevation	Form Liner Bottom Elevation
926+14.90	None	None
926+15.61	712.46	711.96
926+17.34	713.54	712.10
926+29.99	716.17	712.31
926+43.68	718.81	712.53
926+58.80	721.50	712.71
926+79.91	720.31	712.91
927+01.14	719.12	713.10
927+25.08	717.94	713.06
927+52.12	716.75	713.02
927+79.18	715.56	712.96
928+06.25	714.37	712.96
928+26.88	713.47	712.96
928+33.32	None	None
928+60.40	None	None

FILE NAME = ...\60131-W066-010-ArchFinish.dgn

ZROKA engineering — Zroka Engineering, P.C., 4216 North Hermitage, Chicago, IL 60613	USER NAME = SAW	DESIGNED - LAS	REVISED A 12/17/2012 L.A.S.	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION
		CHECKED - DAZ	REVISED	
	PLOT SCALE = 0.1667 ' / IN.	DRAWN - SAW	REVISED	
	PLOT DATE = 12/12/2012	CHECKED - JLA	REVISED	

ARCHITECTURAL FINISH DETAILS
STRUCTURE NUMBER 022-W066

SHEET NO. SE-10 OF SE-11 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
338/IL 59	(112 & 113) WRS-5	DUPAGE	963	682

CONTRACT NO. 60131

ILLINOIS FED. AID PROJECT

BORING LOG RW-74

Geo Services, Inc.
Geotechnical, Environmental & Civil Engineering
805 Aurora Ave., Suite 204
Naperville, Illinois 60563
(630) 355-2828

SOIL BORING LOG

PAGE 1 of 1
DATE 4/23/2012
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GSI JOB No. 09173

ROUTE IL Route 59 (FAP 338) DESCRIPTION Illinois Route 59–Aurora Avenue/New York Street To Ferry Road
SECTION (112 & 113) WRS-5 LOCATION SEC. 3, 9–10, 15–16, 21–22 TWP. 38N, RNG. 9E, Naperville Township
COUNTY DuPage DRILLING METHOD Hollow Stem Auger HAMMER TYPE CME Automatic

STRUCT. NO. 022–W066
Station: 4063+63 to 4066+40
BORING NO. RW–74
Station: 4063+97 IL RTE–59
Offset: 136.8' Right
Ground Surface Elev. 719.5

Surface Water Elev. n/a
Stream Bed Elev. n/a
Groundwater Elevation:
First Encounter 691.5 ▼
Upon Completion ▽
After ____ Hrs. ▽

DEPTH (ft)	BLOWS /6"	UCS Qu (tsf)	MOIST (%)	
	AS	–	33	12.0" TOPSOIL–black
709.5	2		84	
	3			SILTY CLAY–brown & gray–medium stiff to stiff (A–6) Wet, Apparent Fill
	4	0.98	30	
	1			
	2			
–5	2	1.09	32	
705.0				CLAY–brown & gray–very stiff to hard (A–6)
	3		116	
	4			
	7	3.08	17	
	6		119	
	8			
–10	9	4.08	16	
700.0				CLAY–gray–stiff to hard (A–6)
	5		116	
	7			
	9	5.98	17	
	3		108	
	4			
–15	6	1.98	20	
695.5				CLAY LOAM–gray–stiff to hard (A–6) ▼
	4			
	7			
–20	7	4.5+P	10	

DEPTH (ft)	BLOWS /6"	UCS Qu (tsf)	MOIST (%)	
	6		123	CLAY LOAM–gray–stiff to hard (A–6)
	6			
	7	1.28	12	
	3		123	
	4			
–25	5	1.28	14	
	6			
	9			
	9	4.5+P	10	
	4		130	
	8			
–30	10	3.28	11	
	5			
	8			
–35	11	2.25P	10	
676.5				End Of Boring @ –35.0' Hollow Stem Augers CME Automatic Hammer
–40				

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B–Bulge, S–Shear, P–Penetrometer). ST–Shelby Tube Sample. VS–Vane Shear Test. The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206). The Unit Dry Weight (pcf) is noted in Italics above moist (%). NR–No Recovery.

BORING LOG RW-75

Geo Services, Inc.
Geotechnical, Environmental & Civil Engineering
805 Aurora Ave., Suite 204
Naperville, Illinois 60563
(630) 355-2828

SOIL BORING LOG

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GSI JOB No. 09173

ROUTE IL Route 59 (FAP 338) DESCRIPTION Illinois Route 59–Aurora Avenue/New York Street To Ferry Road
SECTION (112 & 113) WRS-5 LOCATION SEC. 3, 9–10, 15–16, 21–22 TWP. 38N, RNG. 9E, Naperville Township
COUNTY DuPage DRILLING METHOD Hollow Stem Auger HAMMER TYPE CME Automatic

STRUCT. NO. 022–W066
Station: 4063+63 to 4066+40
BORING NO. RW–75
Station: 4064+86 IL RTE–59
Offset: 91.4' Right
Ground Surface Elev. 711.6

Surface Water Elev. n/a
Stream Bed Elev. n/a
Groundwater Elevation:
First Encounter 695.1 ▼
Upon Completion ▽
After ____ Hrs. ▽

DEPTH (ft)	BLOWS /6"	UCS Qu (tsf)	MOIST (%)	
	AS	–	51	15.0" TOPSOIL–black
710.4	1		86	
	2			SILTY CLAY–brown & gray–medium stiff to stiff (A–6)
	4	1.09	28	
	3		118	
	2			
–5	2	0.68	19	
706.1				CLAY–brown & gray–very stiff to hard (A–6)
	3		114	
	5			
	8	3.25B	18	
	6		114	
	7			
–10	9	3.08	18	
701.1				CLAY–gray–very stiff (A–6)
	3		118	
	5			
	6	3.58	18	
	2		108	
	3			
–15	6	2.48	21	
696.6				SILTY CLAY LOAM–gray–very stiff (A–4/A–6) ▼
	3		111	
	4			
	9	3.69	19	
	5			
	5			
–20	10	3.09	15	

DEPTH (ft)	BLOWS /6"	UCS Qu (tsf)	MOIST (%)	
691.1				SILTY CLAY LOAM–gray–very stiff
	7		133	
	6			
	10	3.09	10	CLAY LOAM–gray–stiff to very stiff (A–6)
	3		132	
	6			
–20	9	1.89	10	
686.1				CLAY–gray–very stiff (A–6)
	5		115	
	9			
	11	2.48	19	
683.6				CLAY LOAM–gray–hard (A–6)
	9			
	12	4.5+P	14	
679.6				SAND & GRAVEL–brown & gray–medium dense (A–1)
	8			
	11			
–35	13	NP	10	
676.6				End Of Boring @ –35.0' Hollow Stem Augers CME Automatic Hammer
–40				

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B–Bulge, S–Shear, P–Penetrometer). ST–Shelby Tube Sample. VS–Vane Shear Test. The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206). The Unit Dry Weight (pcf) is noted in Italics above moist (%). NR–No Recovery.

BORING LOG RW-76

Geo Services, Inc.
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SOIL BORING LOG

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GSI JOB No. 09173

ROUTE IL Route 59 (FAP 338) DESCRIPTION Illinois Route 59–Aurora Avenue/New York Street To Ferry Road
SECTION (112 & 113) WRS-5 LOCATION SEC. 3, 9–10, 15–16, 21–22 TWP. 38N, RNG. 9E, Naperville Township
COUNTY DuPage DRILLING METHOD Hollow Stem Auger HAMMER TYPE CME Automatic

STRUCT. NO. 022–W066
Station: 4063+63 to 4066+40
BORING NO. RW–76
Station: 4066+07 IL RTE–59
Offset: 113.0' Right
Ground Surface Elev. 712.1

Surface Water Elev. n/a
Stream Bed Elev. n/a
Groundwater Elevation:
First Encounter 703.1 ▼
Upon Completion ▽
After ____ Hrs. ▽

DEPTH (ft)	BLOWS /6"	UCS Qu (tsf)	MOIST (%)	
	AS	–	34	CLAY–gray–very stiff to hard (A–6)
691.6	3			
	3			TOPSOIL–black
	4	1.09	36	
689.1				SILTY LOAM–brown & gray–dense (A–4)
	1			
	3			
–25	4	1.59	15	CLAY LOAM–gray–hard (A–6)
706.6				SILTY CLAY LOAM–brown–stiff (A–4/A–6)
	3		121	
	6			
	9	3.58	15	
684.1				
	7		103	
	9			
–30	12	1.68	23	
696.6				CLAY–brown & gray–stiff to hard (A–6)
	3		104	
	6			
	8	3.28	23	
	3		110	
	6			
–35	11	7.68	19	
677.1				CLAY–gray–very stiff (A–6)
	3		118	
	7			
	8	3.78	19	
	5		114	
	8			
–40	12	4.25B	18	

DEPTH (ft)	BLOWS /6"	UCS Qu (tsf)	MOIST (%)	
	7		113	
	10			
	16			
	17			
	21	NP	12	
	10			
	12			
–25	12	4.5+P	19	
	6			
	10			
	11	4.5+P	9	
	5		111	
	9			
–30	12	3.08	19	
	3		104	
	6			
	9	3.28	23	
	3		110	
	6			
–35	13	3.18	18	
677.1				End Of Boring @ –35.0' Hollow Stem Augers CME Automatic Hammer
–40				

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B–Bulge, S–Shear, P–Penetrometer). ST–Shelby Tube Sample. VS–Vane Shear Test. The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206). The Unit Dry Weight (pcf) is noted in Italics above moist (%). NR–No Recovery.

FILE NAME = ...\60131-W066-811-Boring-Logs.dgn

ZROKA engineering — Zroka Engineering, P.C. 4216 North Hermitage Chicago, IL 60613	USER NAME = SAW	DESIGNED - LAS	REVISED ⚠ 12/17/2012 L.A.S.	
		CHECKED - DAZ	REVISED	
	PLOT SCALE = 2.00 ' / IN.	DRAWN - SAW	REVISED	
	PLOT DATE = 12/12/2012	CHECKED - JLA	REVISED	

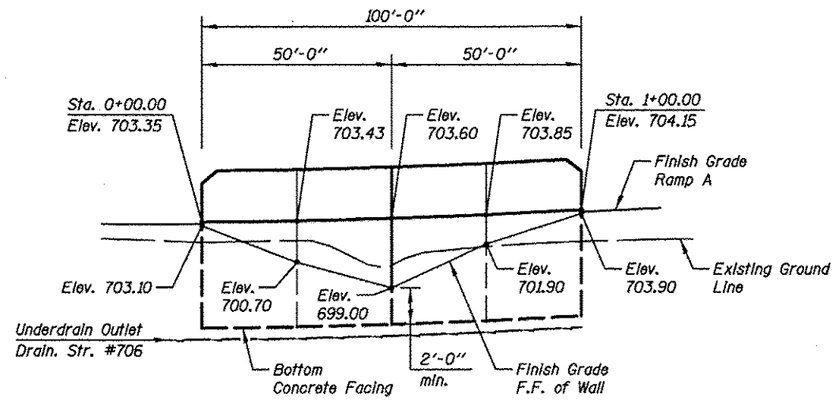
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

BORING LOGS
STRUCTURE NUMBER 022–W066
SHEET NO. SE–11 OF SE–11 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
338/IL 59	(112 & 113) WRS-5	DUPAGE	963	683
		CONTRACT NO. 60131		
	ILLINOIS	FED. AID PROJECT		

Bench Mark: BM #224 4059+52, 34' LT
DuPage County survey disk at north end of the west bridge wall,
IL Rte 59 over Interstate Route 88, Elev. 731.43

Existing Structure: None



ELEVATION

DESIGN SPECIFICATIONS

2012 AASHTO LRFD Bridge Design Specifications
6th Edition, with 2012 Interim Revisions

Illinois State Toll Highway Authority
Structure Design Manual, March 2012

DESIGN STRESSES

FIELD UNITS

f'_c = 3,500 psi
f_y = 60,000 psi (reinforcement)
f_y = 50,000 psi (AASHTO M270 Gr. 50)

CURVE DATA

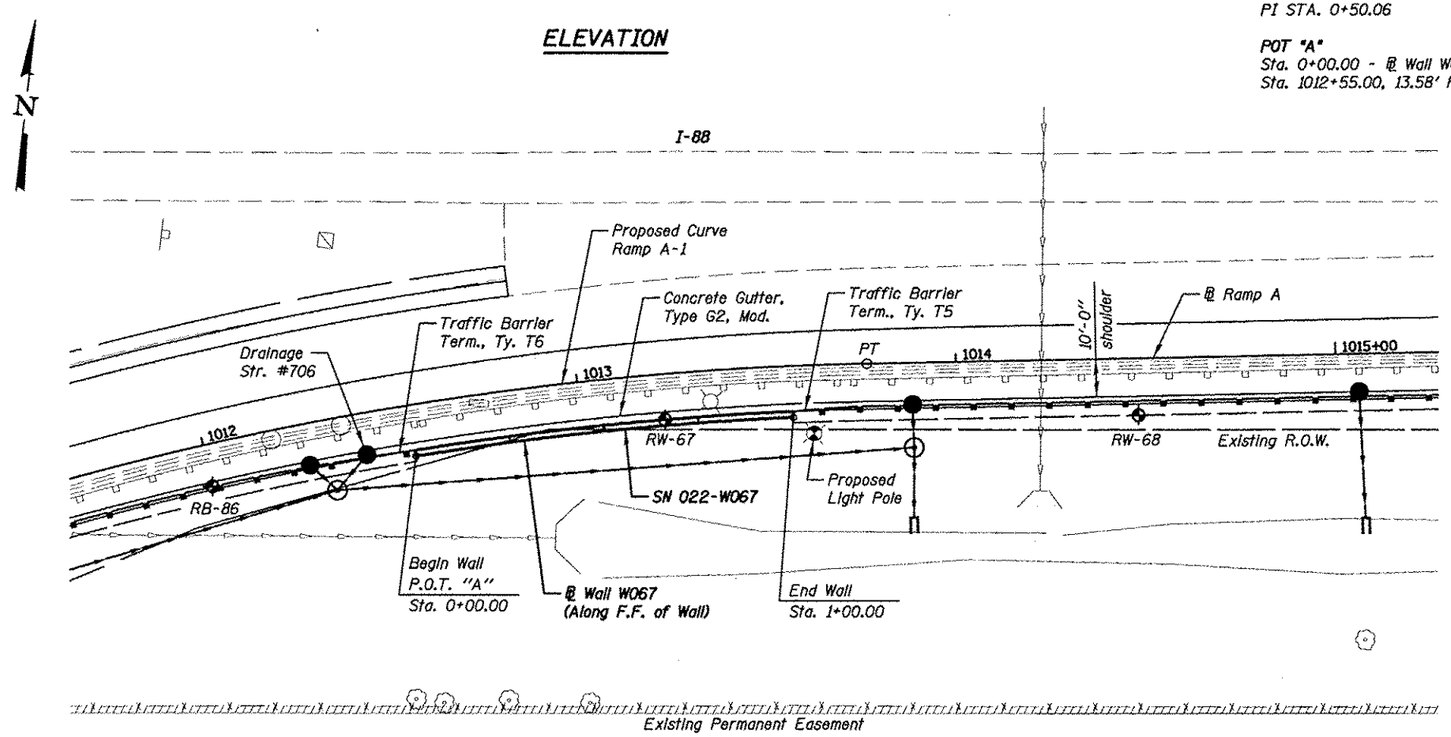
℄ Wall W067	℄ Ramp A
Curve RW067-1	Curve Ramp A-1
Δ = 6° 48' 49" (RT)	Δ = 19° 06' 41" (RT)
D = 6° 48' 49"	D = 6° 42' 19"
R = 840.92'	R = 854.50'
T = 50.06'	T = 143.85'
L = 100.00'	L = 285.02'
E = 1.49'	E = 12.02'
SE = Normal Crown	SE = Normal Crown
PC STA. 0+00.00	PC STA. 1010+91.56
PT STA. 1+00.00	PT STA. 1013+76.58
PI STA. 0+50.06	PI STA. 1012+35.41

POT "A"
Sta. 0+00.00 - ℄ Wall W067 =
Sta. 1012+55.00, 13.58' Rt. - ℄ Ramp A

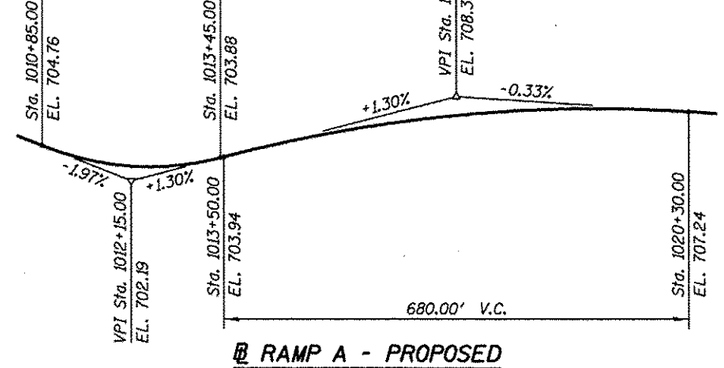
TOTAL BILL OF MATERIAL

ITEM	UNIT	TOTAL
Structure Excavation	Cu. Yd.	58.0
Concrete Structures	Cu. Yd.	46.0
Stud Shear Connectors	Each	200
Reinforcement Bars, Epoxy Coated	Pound	5330
Concrete Sealer	Sq. Ft.	1511.0
Geocomposite Wall Drain	Sq. Yd.	62.0
Untreated Timber Lagging	Sq. Ft.	551.0
Furnishing Soldier Piles (HP Section)	Foot	560.0
Pipe Underdrains for Structures 4"	Foot	112.0
Drilling And Setting Soldier Piles (In Soil)	Cu. Ft.	2842.0

INDEX OF DRAWINGS

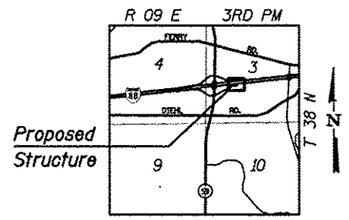


PLAN



℄ RAMP A - PROPOSED PROFILE GRADE LINE

(Profile along outside edge of shoulder)



LOCATION SKETCH

STATE OF ILLINOIS
WILLIAM P. MURPHY
081-004491
LICENSED STRUCTURAL ENGINEER
Expires 11-30-2012

Date: 10/15/2012

for drawings
SF-1 thru SF-5

Notes

See Roadway Plans for Concrete Gutter, Type G2, Mod. details.

See Roadway Drainage Plans for drainage structure sizes and locations.

Legend

Soil Borings
F.F. Front Face
B.F. Back Face

GENERAL PLAN AND ELEVATION
ILLINOIS ROUTE 59 F.A.P. RTE. 338
SEC. (112 & 113) WRS-5
DUPAGE COUNTY
STA. 1012+55 TO STA. 1013+57
STRUCTURE NO. 022-W067

KNIGHT
Engineers & Architects

		DESIGNED - TB	REVISED
		CHECKED - WPM	REVISED
SCALE - NONE		DRAWN - TB	REVISED
DATE - 10/15/2012		CHECKED - WPM	REVISED

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

GENERAL PLAN AND ELEVATION
STRUCTURE NUMBER 022-W067 TOLLWAY WALL EW123.5R,EB(R)
SHEET NO. SF-1 OF 5 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
338	(112 & 113) WRS-5	DUPAGE	963	684
		CONTRACT NO. 60131		
	ILLINOIS	FED. AID PROJECT		

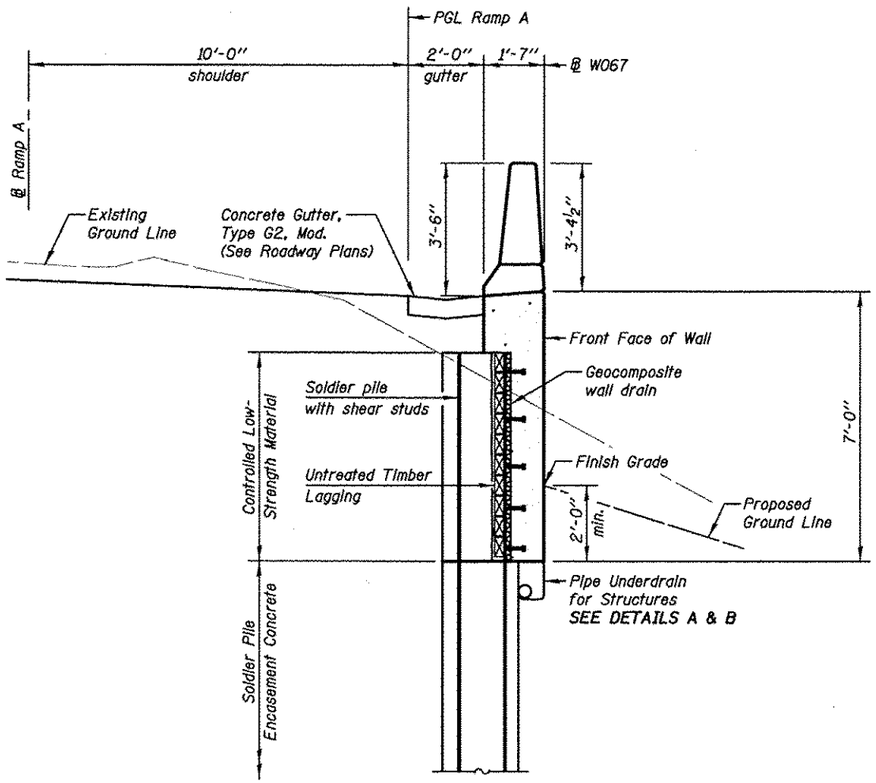
GENERAL NOTES

All structural steel shall conform to the requirements of AASHTO M 270 Grade 50 except as noted on plans.

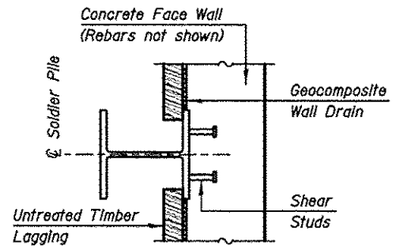
Reinforcement bars designated (E) shall be epoxy coated.

The Contractor is responsible for the design and performance of the timber lagging using no less than a 3 in. nominal rough-sawn thickness and timber with a minimum allowable bending stress of 1000 psi.

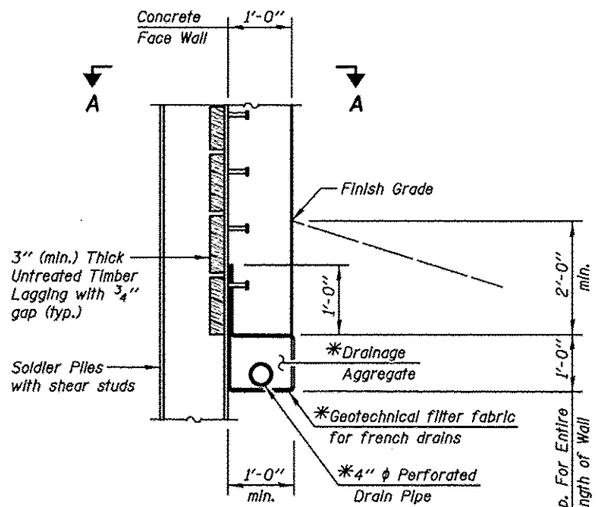
Concrete Sealer shall be applied to exposed surfaces of the front face, top face and back face of wall.



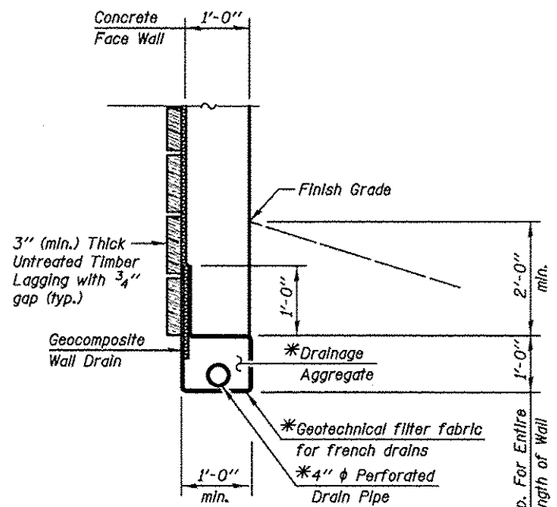
TYPICAL WALL SECTION
(For Details See Sheet SF-4)



SECTION A-A - PLAN



DETAIL A
(At Soldier Piles)



DETAIL B
(Between Soldier Piles)

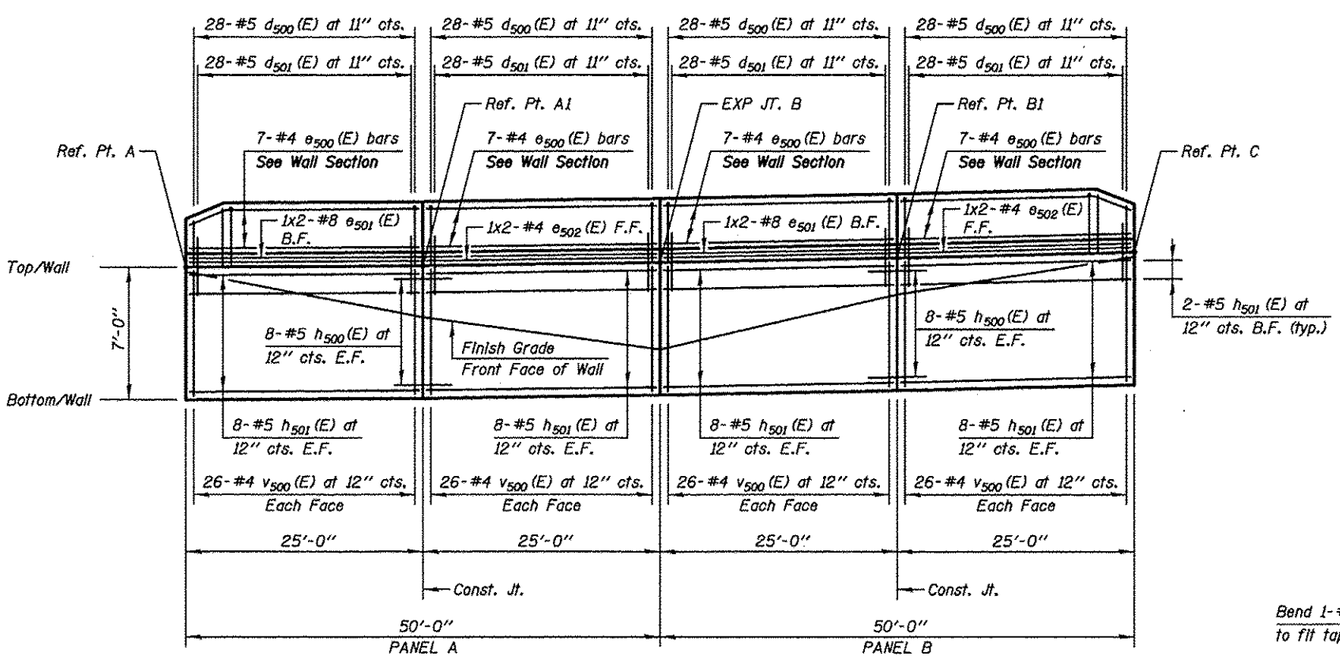
UNDERDRAIN DETAIL
*Cost Included with "Pipe Underdrains for Structures"

KNIGHT Engineers & Architects		DESIGNED - TB	REVISED	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION
		CHECKED - WPM	REVISED	
	SCALE - NONE	DRAWN - TB	REVISED	
	DATE - 10/15/2012	CHECKED - WPM	REVISED	

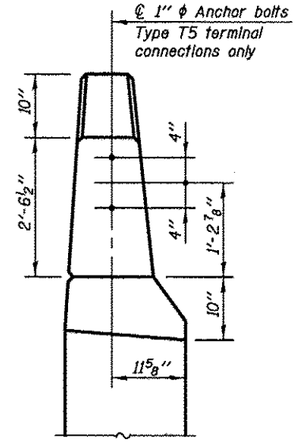
TYPICAL WALL SECTION AND DETAILS
STRUCTURE NUMBER 022-W067 TOLLWAY WALL EW123.5R,EB(R)
SHEET NO. SF-2 OF 5 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
338	(112 & 113) WRS-S	DUPAGE	963	685
		CONTRACT NO. 60131		
	ILLINOIS FED. AID PROJECT			

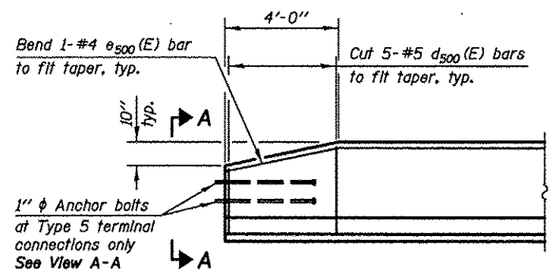
Note:
For Top/Wall Elevations, Bottom/Wall Elevations & Wall Height SEE TABLE.



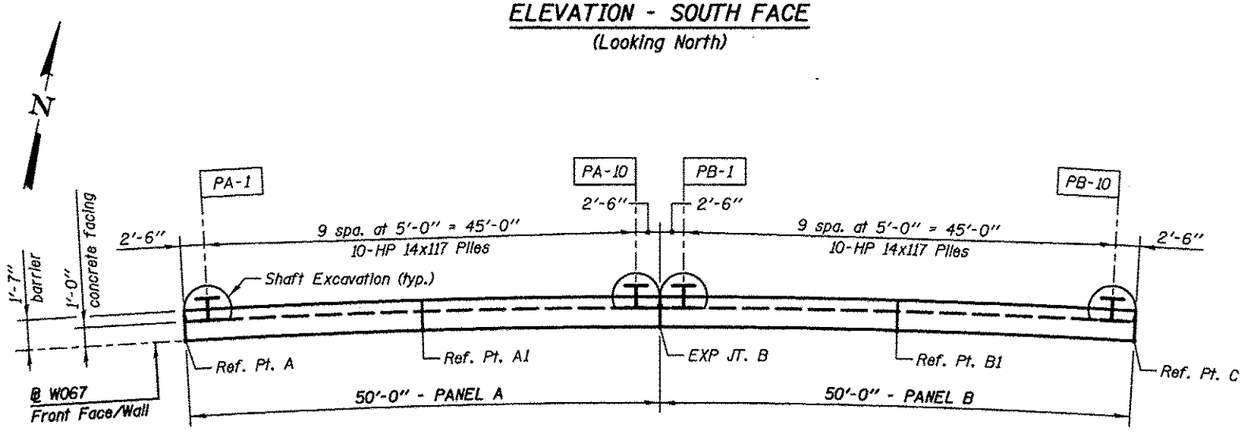
ELEVATION - SOUTH FACE
(Looking North)



VIEW A-A



INSIDE ELEVATION - PARAPET END
Dimensions along inside face of parapet west end shown, east end opposite hand



PLAN
(PANELS A & B)

PILE DATA

Pile No.	Top Elev.	Bottom Elev.	Length Ft.	No of Studs
PA-1	701.73	673.73	28.00	10
PA-2	701.74	673.74	28.00	10
PA-3	701.76	673.76	28.00	10
PA-4	701.78	673.78	28.00	10
PA-5	701.79	673.79	28.00	10
PA-6	701.82	673.82	28.00	10
PA-7	701.85	673.85	28.00	10
PA-8	701.89	673.89	28.00	10
PA-9	701.92	673.92	28.00	10
PA-10	701.95	673.95	28.00	10
PB-1	702.00	674.00	28.00	10
PB-2	702.05	674.05	28.00	10
PB-3	702.10	674.10	28.00	10
PB-4	702.15	674.15	28.00	10
PB-5	702.20	674.20	28.00	10
PB-6	702.25	674.25	28.00	10
PB-7	702.31	674.31	28.00	10
PB-8	702.37	674.37	28.00	10
PB-9	702.43	674.43	28.00	10
PB-10	702.49	674.49	28.00	10

SHAFT SIZES

Pile Size	Shaft Excavation Size
HP14	2'-6"

LEGEND
E.F. Each Face
F.F. Front Face
B.F. Back Face

Min Bar Laps
#5 Bars = 2'-5" (Horiz. Top Bars)

#4 Bars = 2'-1"
#8 Bars = 5'-5"

Notes
All Dimensions are along Front Face of Wall.

Bars indicted thus 3 x 2-#4 etc. indicates 3 lines of bars with 2 lengths per line.

For Wall Section and Bill of Material, SEE Sheet SF-4

WALL JOINT LOCATIONS, HEIGHTS & ELEVATIONS

Location Ref. Points	Station on ℄ W067	Wall Height	Top/Wall Elevation	Bottom/Wall Elevation	Finish Grade Elev.
Begin Wall - A	0+00.00	7'-0"	703.35	696.35	703.10
C.J. - A1	0+25.00	7'-0"	703.43	696.43	700.70
Exp. Jt. - B	0+50.00	7'-0"	703.60	696.60	699.00
C.J. - B1	0+75.00	7'-0"	703.85	696.85	701.90
End Wall - C	1+00.00	7'-0"	704.15	697.15	703.90

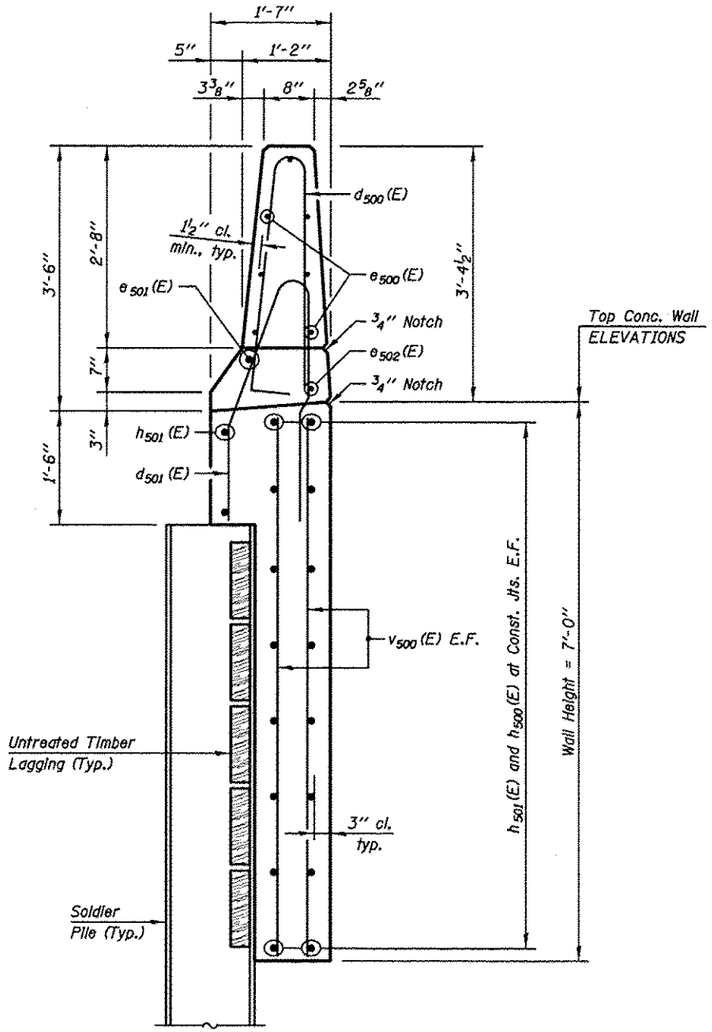
KNIGHT Engineers & Architects

		DESIGNED - TB	REVISED
		CHECKED - WPM	REVISED
SCALE - NONE		DRAWN - TB	REVISED
DATE - 10/15/2012		CHECKED - WPM	REVISED

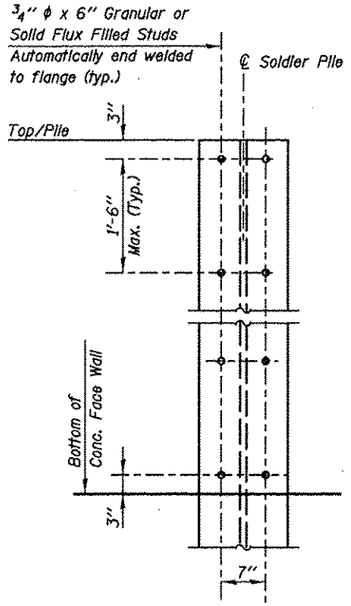
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

PLAN & ELEVATION – PANELS A & B
STRUCTURE NUMBER 022-W067 TOLLWAY WALL EW123.5R,EB(R)
SHEET NO. SF-3 OF 5 SHEETS

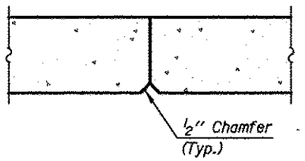
F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
338	(112 & 113) WRS-5	DUPAGE	963	686
		CONTRACT NO. 60131		
	ILLINOIS FED. AID PROJECT			



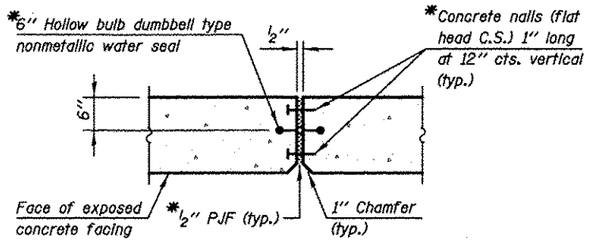
TYPICAL WALL SECTION



STUD SHEAR CONNECTORS LAYOUT

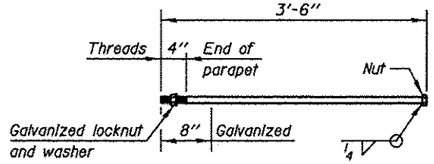


WALL CONSTRUCTION JOINT DETAIL



WALL EXPANSION JOINT DETAIL

* Cost Included with "Concrete Structures".



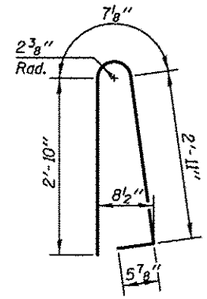
1" ϕ ANCHOR BOLT

(Cost included with Concrete Structures)

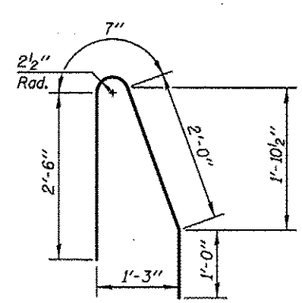
BILL OF MATERIAL

BAR	NO.	SIZE	LENGTH	SHAPE
d500(E)	112	#5	6'-10"	
d501(E)	112	#5	6'-1"	
e500(E)	28	#4	24'-8"	
e501(E)	4	#8	28'-6"	
e502(E)	4	#4	26'-6"	
h500(E)	32	#5	6'-0"	
h501(E)	72	#5	24'-8"	
v500(E)	208	#4	6'-8"	

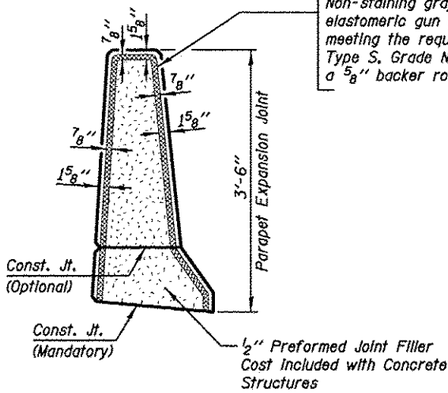
Structure Excavation	Cu. Yd.	58.0
Concrete Structures	Cu. Yd.	46.0
Stud Shear Connectors	Each	200
Concrete Sealer	Sq. Ft.	1511.0
Reinforcement Bars, Epoxy Coated	Pound	5330
Drilling and Setting Soldier Piles (In Soil)	Cu. Ft.	2842.0
Furnishing Soldier Piles (HP14x117)	Foot	560.0

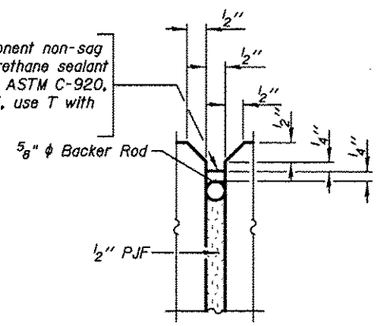


BAR d_{500} (E)



BAR d_{501} (E)





PARAPET JOINT DETAILS

LEGEND:

E.F. Each Face
PJF Preformed Joint Filler

KNIGHT Engineers & Architects		DESIGNED - TB	REVISED	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	WALL SECTIONS AND DETAILS STRUCTURE NUMBER 022-W067 TOLLWAY WALL EW123.5R,EB(R)	F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
		CHECKED - WPM	REVISED			338	(112 & 113) WRS-5	DUPAGE	963	687
	SCALE - NONE	DRAWN - TB	REVISED						CONTRACT NO. 60131	
	DATE - 10/15/2012	CHECKED - WPM	REVISED		SHEET NO. SF-4 OF 5 SHEETS			ILLINOIS FED. AID PROJECT		

Geo Services Inc.
Geotechnical, Environmental & Civil Engineering
805 Arbor Lake Drive Suite 204
Naperville, Illinois 60565
(630) 357-2500

SOIL BORING LOG

PAGE 1 of 1
DATE 4/2/2012
LOGGED BY RT
GSI JOB No. 09173

ROUTE IL Route 59 (FAP 338) DESCRIPTION Illinois Route 59-Aurora Avenue/New York Street To Ferry Road
SECTION (112 & 113) WRS-5 LOCATION SEC. 3, 9-10, 15-16, 21-22 TWP. 38N, RNG. 9E, Naperville Township
COUNTY DuPage DRILLING METHOD Hollow Stem Auger HAMMER TYPE CME Automatic

STRUCT. NO. --
Station: --
BORING NO. RB-86
Station: 1012+00 Ramp A
Offset: 2.3' Left
Ground Surface Elev. 704.4

Surface Water Elev. n/a
Stream Bed Elev. n/a
Groundwater Elevation:
First Encounter Dry
Upon Completion Dry
After ____ Hrs. ____

DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)
	10		
	16		
	14	NP	6
			116
	4		
-5	4	3.2B	15
			96
	3		
	7		
	10	1.4B	24
			113
	4		
	7		
-10	9	4.2B	15
-15			
-20			
-25			
-30			
-35			
-40			

7.0" ASPHALT
CRUSHED STONE-dense (Fill)
CLAY to CLAY LOAM-brown, gray & black-stiff to hard (A-6) Fill
End Of Boring @ -10.0'
Hollow Stem Augers
CME Automatic Hammer

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B-Bulge, S-Shear, P-Penetrometer) ST-Shelby Tube Sample VS-Vane Shear Test
The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206) The Unit Dry Weight (pcf) is noted in italics above moist (%)
NR-No Recovery

Geo Services Inc.
Geotechnical, Environmental & Civil Engineering
805 Arbor Lake Drive Suite 204
Naperville, Illinois 60565
(630) 357-2500

SOIL BORING LOG

PAGE 1 of 1
DATE 4/3/2012
LOGGED BY RT
GSI JOB No. 09173

ROUTE IL Route 59 (FAP 338) DESCRIPTION Illinois Route 59-Aurora Avenue/New York Street To Ferry Road
SECTION (112 & 113) WRS-5 LOCATION SEC. 3, 9-10, 15-16, 21-22 TWP. 38N, RNG. 9E, Naperville Township
COUNTY DuPage DRILLING METHOD Hollow Stem Auger HAMMER TYPE CME Automatic

STRUCT. NO. 022-W067
Station: 1012+28.23 to 1022+50.59
BORING NO. RW-67
Station: 1013+08 188 Ramp A
Offset: 3.0' Left
Ground Surface Elev. 704.6

Surface Water Elev. n/a
Stream Bed Elev. n/a
Groundwater Elevation:
First Encounter 679.6
Upon Completion 683.6
After ____ Hrs. ____

DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)
	17		
	21		
	16	NP	12
	5		
	6		
-5	7	4.0P	18
	2		97
	3		
	4	2.0B	25
	0		
	2		
-10	2	1.75P	17
			117
	4		
	7		
	8	4.75B	15
-15			
	4		
	5		
-20	7	4.5P	17
	4		
	5		
	6	4.5P	13
	2		
	2		
-25	2	0.5P	13
-30			
-35			
-40			

7.5" ASPHALT
CRUSHED STONE--dense
CLAY LOAM-dark brown-hard (A-6) Fill
SILTY CLAY--brown & gray-very stiff (A-6) Wet
CLAY LOAM-gray--stiff to hard (A-6)
Silt seams from -13.5' to -15.0'.
SILTY CLAY LOAM-gray-loose to medium dense (A-4)

DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)
	5		128
	6		
	6	3.0B	10
	6		
	11		
-25	13	3.75P	11
			120
	4		
	6		
	8	2.5B	13
			124
	3		
	4		
-30	5	2.0B	13
			105
	3		
	5		
-35	5	2.5B	21
-40			

SILTY CLAY LOAM-gray-loose to medium dense (A-4) ▽683.6
CLAY LOAM-gray-very stiff (A-6)
Sand & gravel seams from -23.5' to -25.0'.
672.6
CLAY-gray-very stiff (A-6)
669.6 -35
End Of Boring @ -35.0'
Hollow Stem Augers
CME Automatic Hammer

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B-Bulge, S-Shear, P-Penetrometer) ST-Shelby Tube Sample VS-Vane Shear Test
The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206) The Unit Dry Weight (pcf) is noted in italics above moist (%)
NR-No Recovery

Geo Services Inc.
Geotechnical, Environmental & Civil Engineering
805 Arbor Lake Drive Suite 204
Naperville, Illinois 60565
(630) 357-2500

SOIL BORING LOG

PAGE 1 of 1
DATE 4/3/2012
LOGGED BY RT
GSI JOB No. 09173

ROUTE IL Route 59 (FAP 338) DESCRIPTION Illinois Route 59-Aurora Avenue/New York Street To Ferry Road
SECTION (112 & 113) WRS-5 LOCATION SEC. 3, 9-10, 15-16, 21-22 TWP. 38N, RNG. 9E, Naperville Township
COUNTY DuPage DRILLING METHOD Hollow Stem Auger HAMMER TYPE CME Automatic

STRUCT. NO. 022-W067
Station: 1012+28.23 to 1022+50.59
BORING NO. RW-68
Station: 1014+32 188 Ramp A
Offset: 3.0' Left
Ground Surface Elev. 705.8

Surface Water Elev. n/a
Stream Bed Elev. n/a
Groundwater Elevation:
First Encounter 680.8
Upon Completion 677.8
After ____ Hrs. ____

DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)
	12		
	29		
	10	NP	7
	8		
	15		
-5	20	4.5P	9
	5		
	5		
	7	1.5P	33
			92
	3		
	2		
-10	2	1.8B	29
	2		
	6		
	8	-	9
	2		
	6		
-15	6	0.5P	15
			117
	5		
	37		
	9	3.5B	16
	28		
	29		
-20	8	3.0P	20
-25			
-30			
-35			
-40			

7.0" ASPHALT
CRUSHED STONE--dense
CLAY LOAM-brown--hard (A-6) Fill
TOPSOIL--black
SILTY CLAY-dark brown & gray-stiff (A-6) Wet
Clayey SAND & GRAVEL--brown--medium dense (A-2)
SILTY LOAM-gray-medium dense (A-4)
CLAY-gray-very stiff (A-6)

DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)
	3		104
	4		
	9	2.75B	22
	4		
	7		
	7	-	12
	3		
	3		
	4	1.25P	9
	4		118
	7		
-30	9	5.4B	13
	2		123
	3		
	5	1.8B	13
-40			

CLAY-gray-very stiff (A-6)
682.8
SANDY LOAM-gray-medium dense (A-2)
▽680.8 -25
CLAY LOAM-gray-stiff to hard (A-6)
670.8 -35
End Of Boring @ -35.0'
Hollow Stem Augers
CME Automatic Hammer

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B-Bulge, S-Shear, P-Penetrometer) ST-Shelby Tube Sample VS-Vane Shear Test
The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206) The Unit Dry Weight (pcf) is noted in italics above moist (%)
NR-No Recovery

KNIGHT Engineers & Architects		DESIGNED - GSI	REVISED	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION
		CHECKED - WPM	REVISED	
	SCALE - NONE	DRAWN - TB	REVISED	
	DATE - 10/15/2012	CHECKED - WPM	REVISED	

SOIL BORING LOGS
STRUCTURE NUMBER 022-W067 TOLLWAY WALL EW123.5R,EB(R)
SHEET NO. SF-5 OF 5 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
338	(112 & 113) WRS-5	DUPAGE	963	688
		CONTRACT NO. 60131		
	ILLINOIS FED. AID PROJECT			

FOR CONTINUATION OF IMPROVEMENT
SEE DIEHL ROAD
PLAN-PROFILE SHEET

STA. 4041+23.18 ILLINOIS ROUTE 59 =
STA. 100+00.00 DIEHL RD.

DIEHL ROAD

EXISTING R.O.W.
PROPOSED R.O.W.

RB-29

MATCH LINE STA. 4036+50

RW-51
RW-52
RW-53

PROPOSED R.O.W.
PROPOSED RETAINING WALL
EXISTING R.O.W.

RB-75

DIEHL ROAD

~ PROPOSED ℄ RTE 59

RB-30

100+00

PROPOSED R.O.W.
EXISTING R.O.W.

ILLINOIS ROUTE 59

RB-32

MATCH LINE STA. 4050+00

RB-31

PROPOSED R.O.W.

EXISTING R.O.W.

N

HORIZONTAL SCALE: 1"=50'-0"

VERTICAL SCALE: 1"=5'-0"

(10) 1.0'-2.5' CLAY LOAM (A-6) LL=31 PL=17 PI=14 G.I.=8

~ DIEHL ROAD STA. 4041+23.18

RB-29 4037+00 72.0' Left 709.5

	N	Qu	W%
TOPSOIL AS	-	-	25
CLAY LOAM FILL (A-6)	7	2.25P	19
SILTY CLAY (A-6)	9	2.0P	23
SILTY CLAY LOAM (A-4/A-6)	10	1.5P	25
CLAY (A-6)	13	6.6B	19
EOB			

RW-51 4038+21 83.5' Right 707.9

	N	Qu	W%
TOPSOIL AS	-	-	33
SAND & GRAVEL (FILL)	10	NP	9
CLAY LOAM (A-6)	17	4.75B	20
	12	2.0B	14
SAND & GRAVEL (A-1)	9	NP	8
	12	NP	17
CLAY LOAM (A-4/A-6)	21	2.1B	12
	10	1.0P	12
	12	1.0P	10
EOB			

RB-30 4043+00 48.5' Left 707.3

	N	Qu	W%
TOPSOIL AS	-	-	21
	10	4.1S	14
CLAY LOAM (A-6)	13	6.4B	16
	12	4.5P	13
	11	5.6B	16
	12	3.7B	18
CLAY (A-6)	14	4.25B	18
	13	2.8B	20
	11	1.7B	22
EOB			

RB-31 4046+00 45.0' Right 708.3

	N	Qu	W%
TOPSOIL AS	-	-	21
SILTY CLAY (A-6)	10	3.0P	29
	15	4.5+P	14
CLAY (A-6)	18	2.9B	16
	22	7.2B	15
EOB			

RB-32 4049+00 36.5' Left 709.9

	N	Qu	W%
TOPSOIL AS	-	-	21
CLAY LOAM FILL (A-6)	4	4.0P	12
	16	4.25P	16
	16	4.9B	16
CLAY (A-6)	20	6.2B	15
	31	10.4B	17
	21	4.8B	16
	11	3.9B	13
SILTY CLAY LOAM (A-4/A-6)	18	NP	12
EOB			

715 710 705 700 695 690 685

709.40 709.59 709.67 709.60 709.43 709.25 709.08 708.90 708.73 708.55 708.38 708.20 708.03 707.85 707.68 707.50 707.33 707.15 706.98 706.94 707.00 707.25 707.65 708.21 708.92 709.79 710.81 711.99

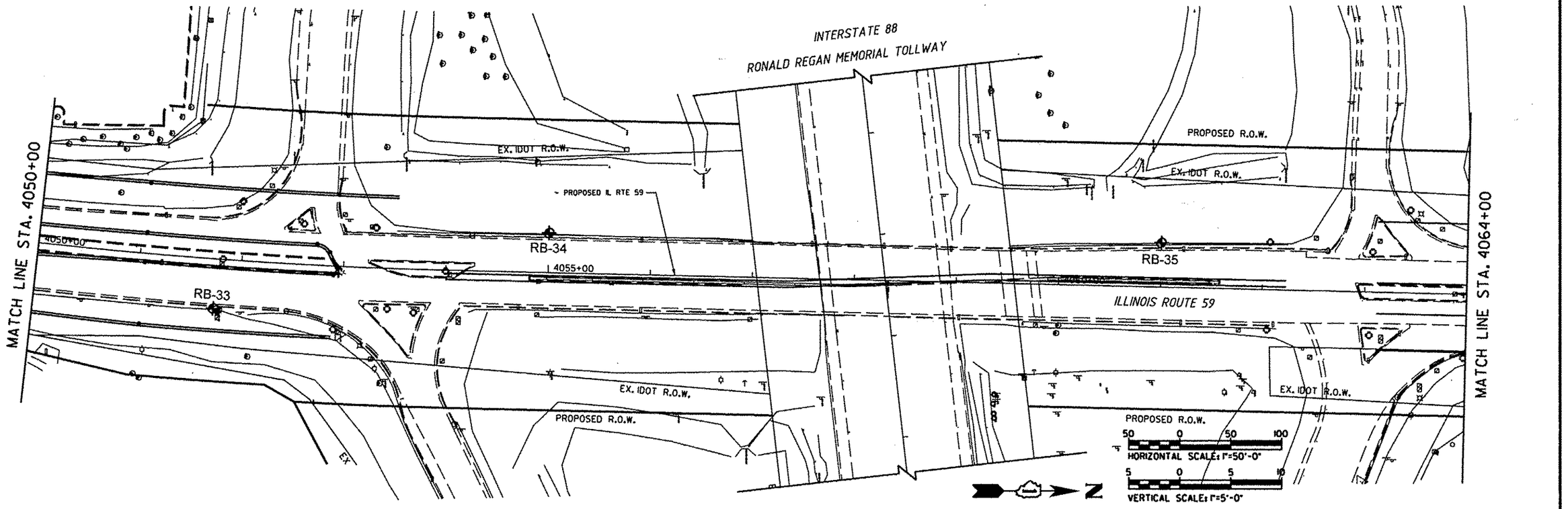
4037+00 4038+00 4039+00 4040+00 4041+00 4042+00 4043+00 4044+00 4045+00 4046+00 4047+00 4048+00 4049+00 4050+00

Geo Services, Inc. Geotechnical, Environmental & Civil Engineering 805 Amherst Court, Suite 204 Naperville, Illinois 60563 (630) 305-2838	USER NAME =	DESIGNED - RWC	REVISED -	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	SOIL BORING PLAN / PROFILE ILLINOIS ROUTE 59
		DRAWN - RWC	REVISED -		
	PLOT SCALE =	CHECKED - AJP	REVISED -		
	PLOT DATE =	DATE - 3/24/2011	REVISED -		

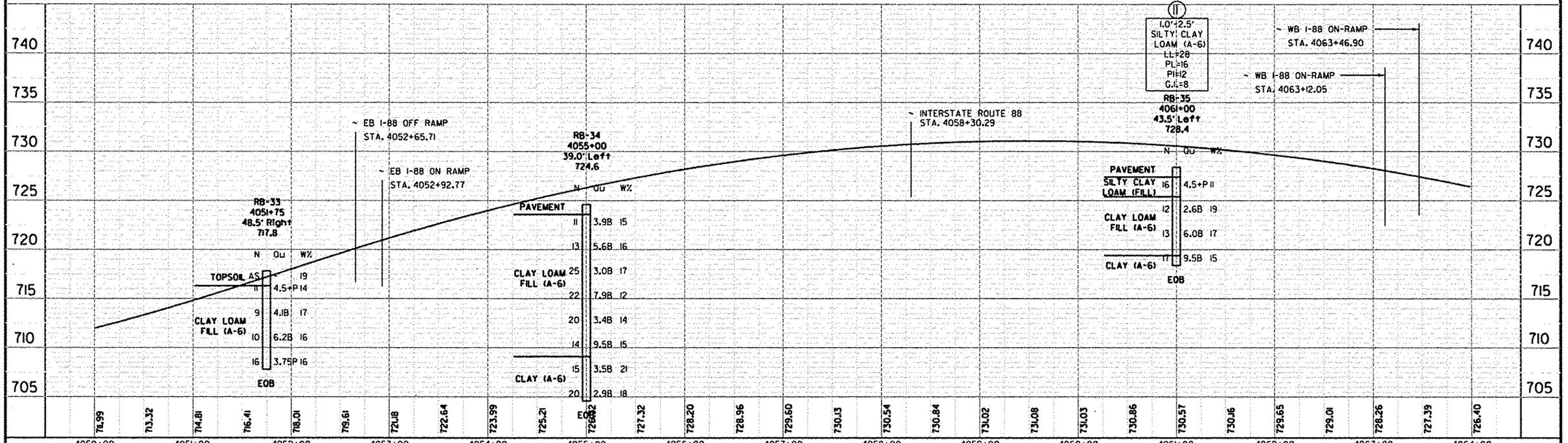
F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
338/IL 59	(82 & 83) WRS-5	DUPAGE	963	689
		CONTRACT NO. 60131		

SCALE: | SHEET NO. OF SHEETS | STA. 4036+50 TO STA. 4050+00 | FED. ROAD DIST. NO. | ILLINOIS | FED. AID PROJECT

PLAN
NOTE BOOK
NO.
SURVEYED
PLOTTED
CRAWS CHECKED
STRUCTURE NOTATIONS CHKD
BY
DATE



PROFILE
SURVEYED
PLOTTED
CRAWS CHECKED
STRUCTURE NOTATIONS CHKD
NOTE BOOK
NO.
BY
DATE



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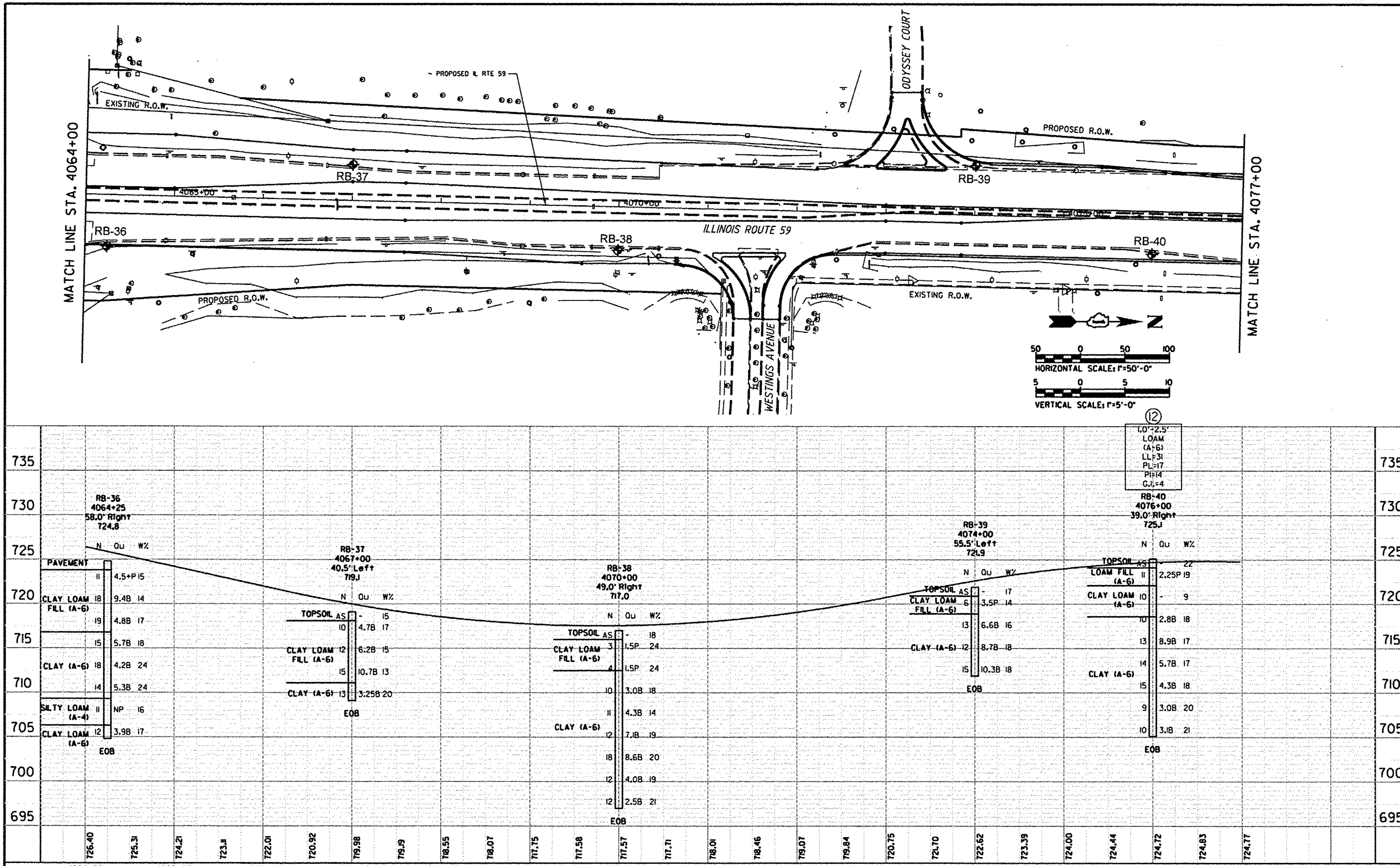
		DRAWN - RWC	REVISED -		
	PLOT SCALE =	CHECKED - AJP	REVISED -		
	PLOT DATE =	DATE - 3/24/2011	REVISED -		

SCALE: | SHEET NO. OF SHEETS | STA. 4050+00 TO STA. 4064+00

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
338/IL 59	0R2 & R3) WRS-5	DUPAGE	963	690
		CONTRACT NO. 60131		
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		



Geo Services, Inc.
Geotechnical, Environmental & Civil Engineering
805 Amherst Court, Suite 204
Naperville, Illinois 60565
(630) 355-2838

USER NAME =	DESIGNED - RWC	REVISED -	
	DRAWN - RWC	REVISED -	
PLOT SCALE =	CHECKED - AJP	REVISED -	
PLOT DATE =	DATE - 3/24/2011	REVISED -	

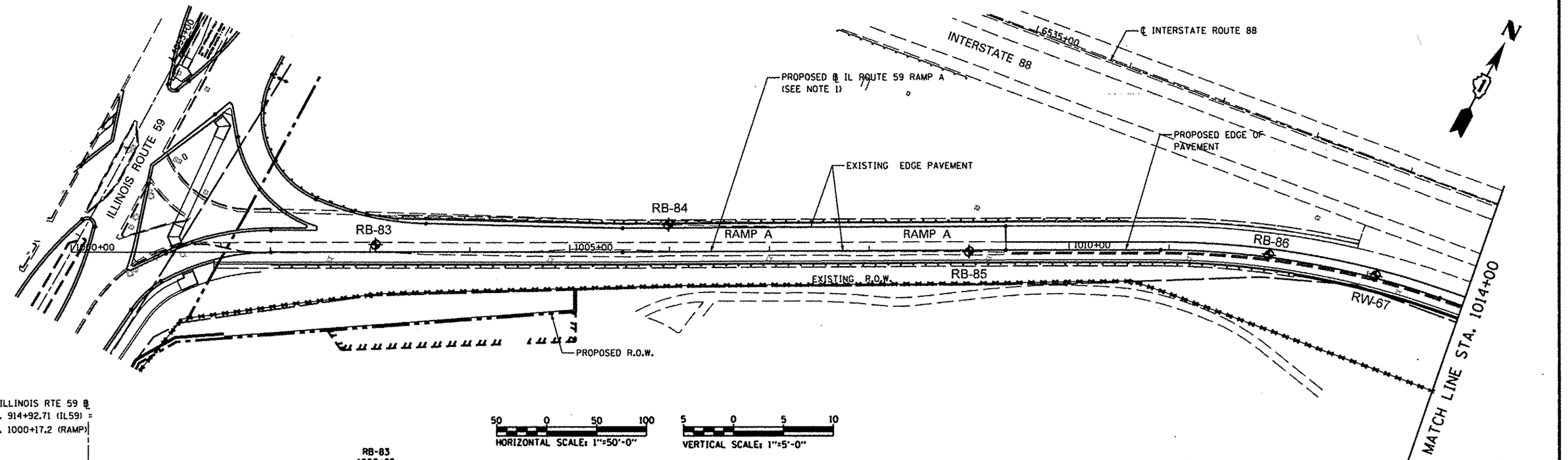
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

SOIL BORING
PLAN / PROFILE ILLINOIS ROUTE 59

SCALE: | SHEET NO. OF SHEETS | STA. 4064+00 TO STA. 4077+00

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
338/IL 59	(X2 & 131)WRS-5	DUPAGE	963	691
		CONTRACT NO. 60131		

FED. ROAD DIST. NO. | ILLINOIS | FED. AID PROJECT



NB ILLINOIS RTE 59 ℄
STA. 914+92.71 (IL59) =
STA. 1000+17.2 (RAMP)

ILLINOIS RTE 59 ℄
STA. 1000+00

RB-83
1003+05
7.6' Left
719.0

	N	Qu	W%
PAVEMENT			
SAND & GRAVEL (FILL)	12	NP	7
	19	9.5B	13
	19	3.2B	16
CLAY LOAM (FILL)	14	2.1B	15
	9	5.0B	17
	26	2.9B	14
TOPSOIL	8	1.0P	25
	16	5.75B	14
EOB			

RB-84
1005+99
27.0' Left
714.4

	N	Qu	W%
CRUSHED ASPHALT AC		NP	4
	11	3.5P	16
CLAY LOAM (A-6)	15	6.9B	15
SILTY CLAY (A-6)	7	1.7B	29
CLAY LOAM (A-6)	16	4.5+P	13
EOB			

PROPOSED PGL PROFILE

EXISTING PROFILE ALONG PROPOSED ℄ RAMP A

RB-85
1009+00
1.3' Left
708.6

	N	Qu	W%
PAVEMENT			
SAND & GRAVEL (FILL)	8	NP	7
	15	2.4B	16
	15	3.3B	17
CLAY LOAM (A-6)	15	4.5+P	15
	17	3.3B	16
	19	5.5B	15
CLAY (A-6)	15	2.8B	20
	19	2.2B	18
EOB			

RB-86
1012+00
2.3' Left
704.4

	N	Qu	W%
PAVEMENT			
CRUSHED STONE	30	NP	6
	8	3.2B	15
CLAY LOAM (FILL)	17	1.4B	24
	16	4.2B	15
EOB			

RW-67
1013+08
3.0' Left
704.6

	N	Qu	W%
PAVEMENT			
	37	NP	12
CLAY LOAM (FILL)	13	4.0P	18
SILTY CLAY (A-6)	7	2.0B	25
	4	1.75P	17
CLAY LOAM (A-6)	15	4.75B	15
	12	4.5P	17
	11	4.5P	13
SILTY CLAY LOAM (A-4)	4	0.5P	13
	12	3.0B	10
	24	3.75P	11
CLAY LOAM (A-6)	14	2.5B	14

LEGEND

BORING NUMBER
STATION
OFFSET
ELEVATION

N-VALUE
SOIL STRENGTH (TSF)
B-BULGE
S-SHEAR
P-POCKET PENETROMETER
MOISTURE CONTENT (%)
NR=NO RECOVERY

N Qu W%
AS 10 2.5P 22
9 NP 7
16 1.5B 14
27 - 12
EOB

GROUNDWATER ELEVATION
▼ FIRST ENCOUNTER
▽ AT COMPLETION
▽ 24 HRS WATER LEVEL

EOB=END OF BORING

EXISTING GRADE EL.
PROPOSED GRADE EL.

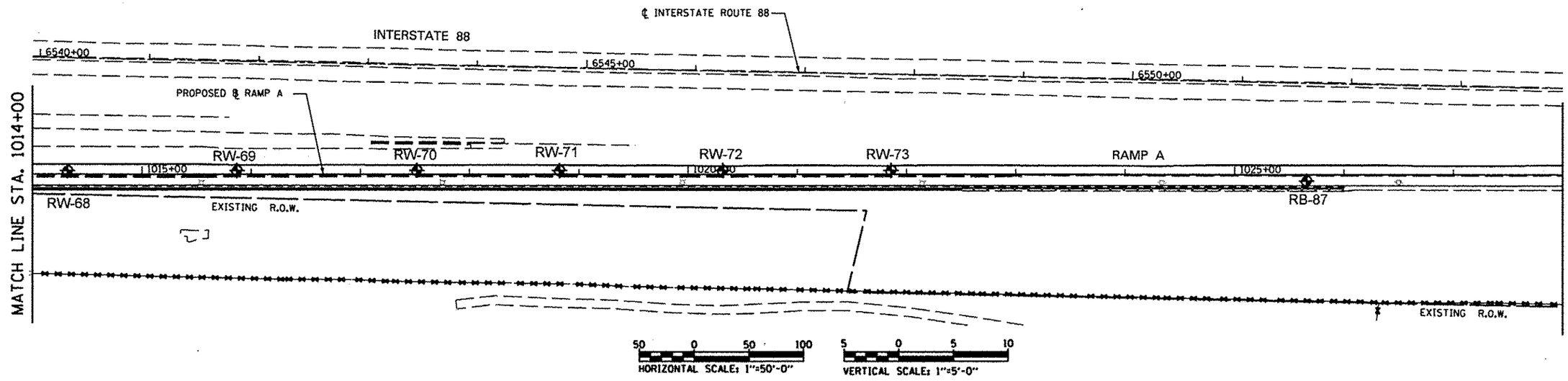
720 715 710 705 700 695 690 685 680

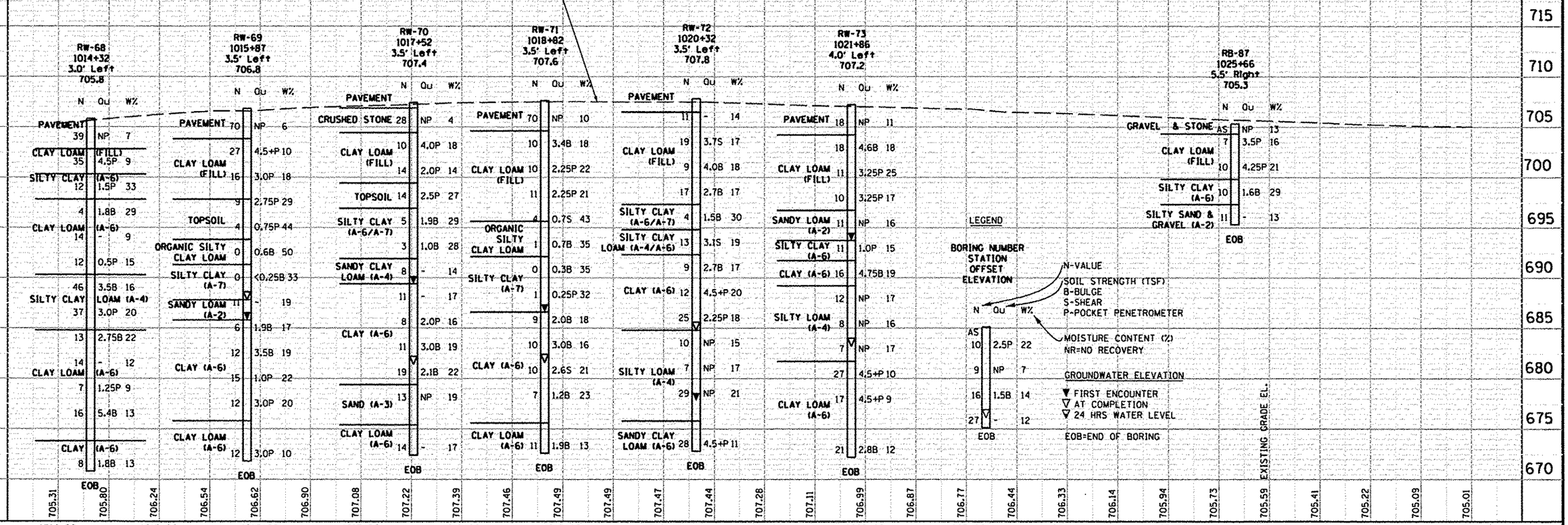
1000+00	1001+00	1002+00	1003+00	1004+00	1005+00	1006+00	1007+00	1008+00	1009+00	1010+00	1011+00	1012+00	1013+00	1014+00
720.25	720.79	721.34	720.82	720.06	719.39	718.51	717.72	716.78	715.95	715.23	714.38	713.51	712.81	711.90	711.01	710.19	709.43	708.48	707.88	707.07	706.27	705.40	704.69	704.26	704.17	704.10	705.31	705.80
720.45	720.36	720.33	720.03	719.38	718.57	717.75	716.94	716.13	715.31	714.50	713.68	712.87	712.06	711.24	710.43	709.61	708.80											

Geo Services, Inc.
Geotechnical, Environmental & Civil Engineering
805 Amherst Court, Suite 204
Naperville, Illinois 60565
(630) 355-2838

USER NAME =		DESIGNED - RWC	REVISED - 7/11/2012	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	SOIL BORING PLAN / PROFILE – RAMP A
PLOT SCALE =		DRAWN - RWC	REVISED -		SCALE: AS SHOWN | SHEET NO. 1 OF 3 SHEETS | STA. 1000+00 TO STA. 1014+00
PLOT DATE =		CHECKED - AJP	REVISED -		
		DATE - 5/17/2012	REVISED -		

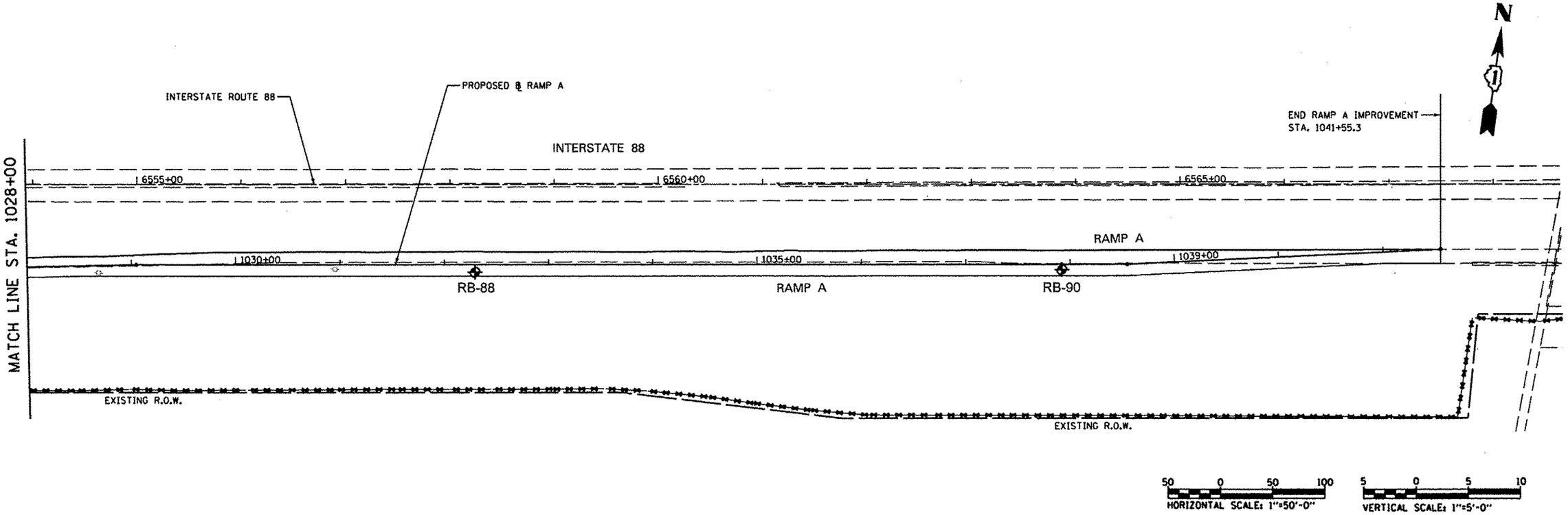
F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
338/IL 59	(112 & 113) WRS-5	DUPAGE	963	692
		CONTRACT NO. 60131		
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		

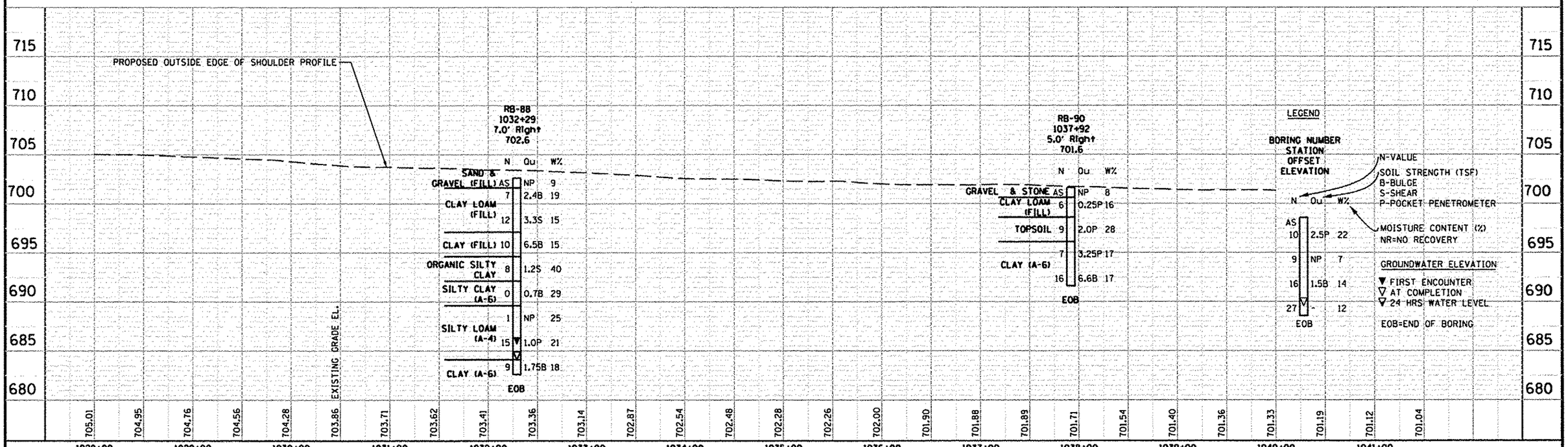




Geo/Services, Inc. Geotechnical, Environmental & Civil Engineering 805 Amherst Court, Suite 204 Naperville, Illinois 60565 (630) 355-2838	USER NAME =	DESIGNED - RWC	REVISED - 7/11/2012	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	SOIL BORING PLAN / PROFILE – RAMP A
		DRAWN - RWC	REVISED -		
	PLOT SCALE =	CHECKED - AJP	REVISED -		SCALE: AS SHOWN | SHEET NO. 2 OF 3 SHEETS | STA. 1014+00 TO STA. 1028+00
	PLOT DATE =	DATE - 5/17/2012	REVISED -		

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
338/IL 59	(112 & 113) WRS-5	DUPAGE	963	693
		CONTRACT NO. 60131		
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		





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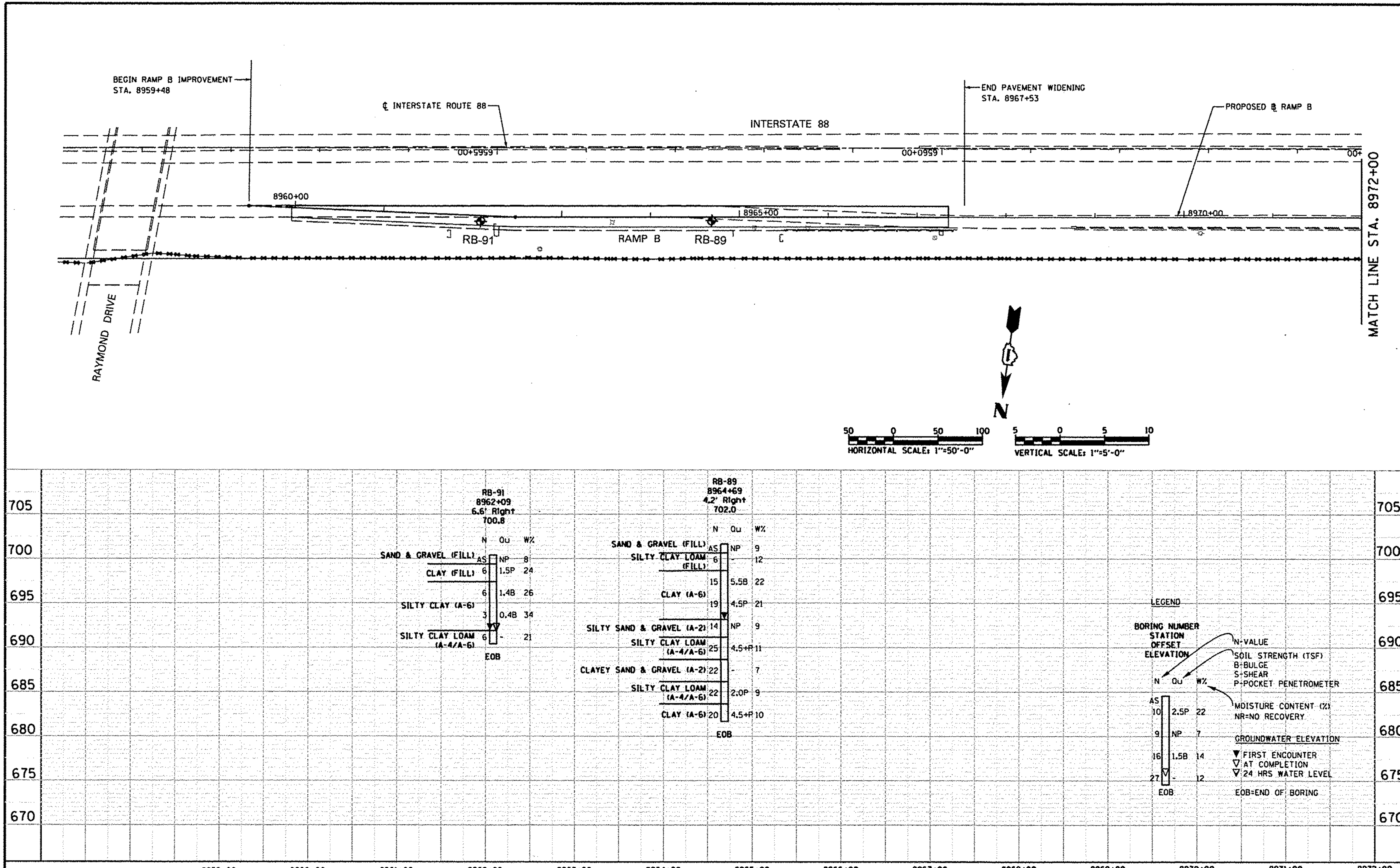
		DRAWN - RWC	REVISED -		
	PLOT SCALE =	CHECKED - AJP	REVISED -		
	PLOT DATE =	DATE - 5/17/2012	REVISED -		

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
338/IL 59	(112 & 113) WRS-5	DUPAGE	963	694
		CONTRACT NO. 60131		
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		

SCALE: AS SHOWN | SHEET NO. 3 OF 3 SHEETS | STA. 1028+00 TO STA. 1041+55.31



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Geotechnical, Environmental & Civil Engineering
805 Amherst Court, Suite 204
Naperville, Illinois 60565
(630) 355-2838

USER NAME =	DESIGNED - RWC	REVISED -	
	DRAWN - RWC	REVISED -	
PLOT SCALE =	CHECKED - AJP	REVISED -	
PLOT DATE =	DATE - 5/20/2011	REVISED -	

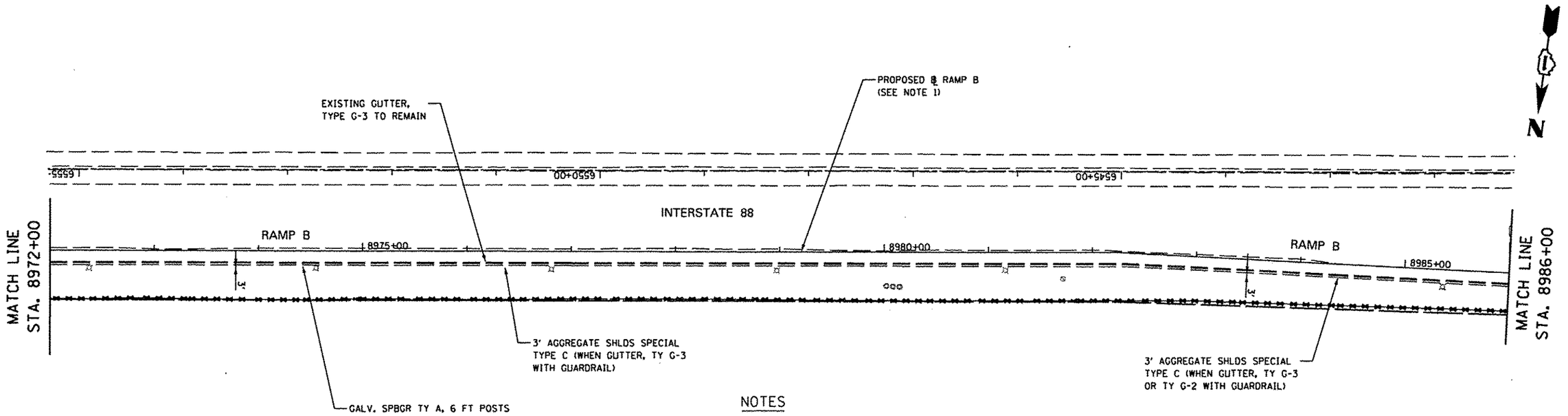
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

SOIL BORING PLAN / PROFILE – RAMP B

SCALE: AS SHOWN | SHEET NO. 1 OF 3 SHEETS | STA. 8959+47.92 TO STA. 8972+00

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
338/IL 59	(112 & 113) WRS-5	DUPAGE	963	695
		CONTRACT NO. 60131		

FED. ROAD DIST. NO. | ILLINOIS | FED. AID PROJECT



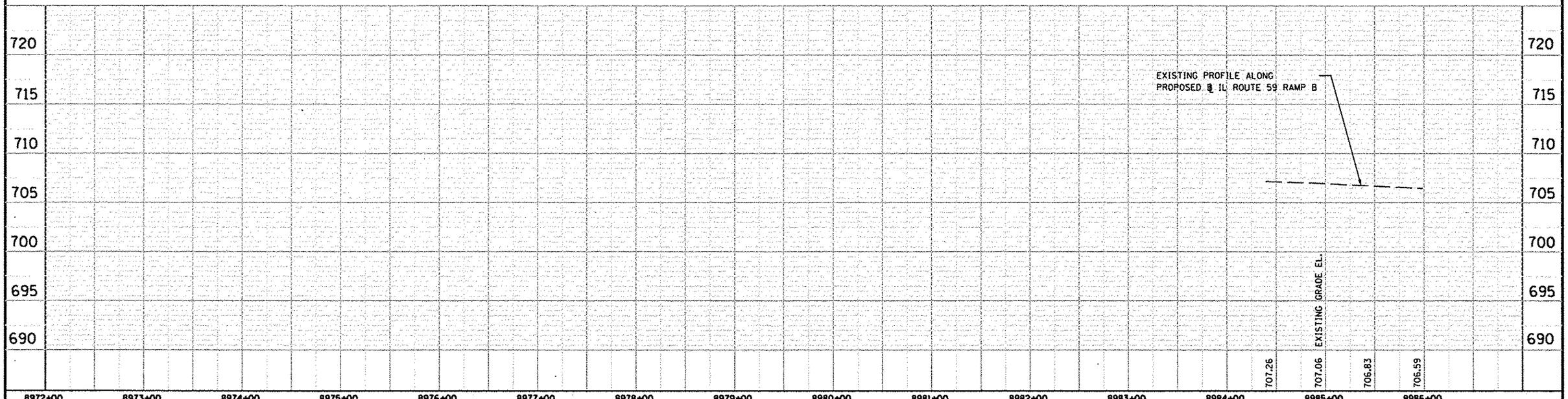
NOTES

1. FOR PROPOSED ILLINOIS ROUTE 59 AND I-88 RAMP BASELINE INFORMATION SEE ALIGNMENT, BENCHMARKS, AND TIES - ILLINOIS ROUTE 59 NORTHBOUND & SOUTHBOUND BASELINE AND I-88 RAMPS DATA SHEETS.

2. FOR PROPOSED ILLINOIS ROUTE 59 AND I-88 RAMP PAVEMENT GEOMETRY INFORMATION SEE GEOMETRIC LAYOUT - ILLINOIS ROUTE 59 AND GEOMETRIC LAYOUT - I-88 RAMPS SHEETS.

HORIZONTAL SCALE: 1"=50'-0"

VERTICAL SCALE: 1"=5'-0"



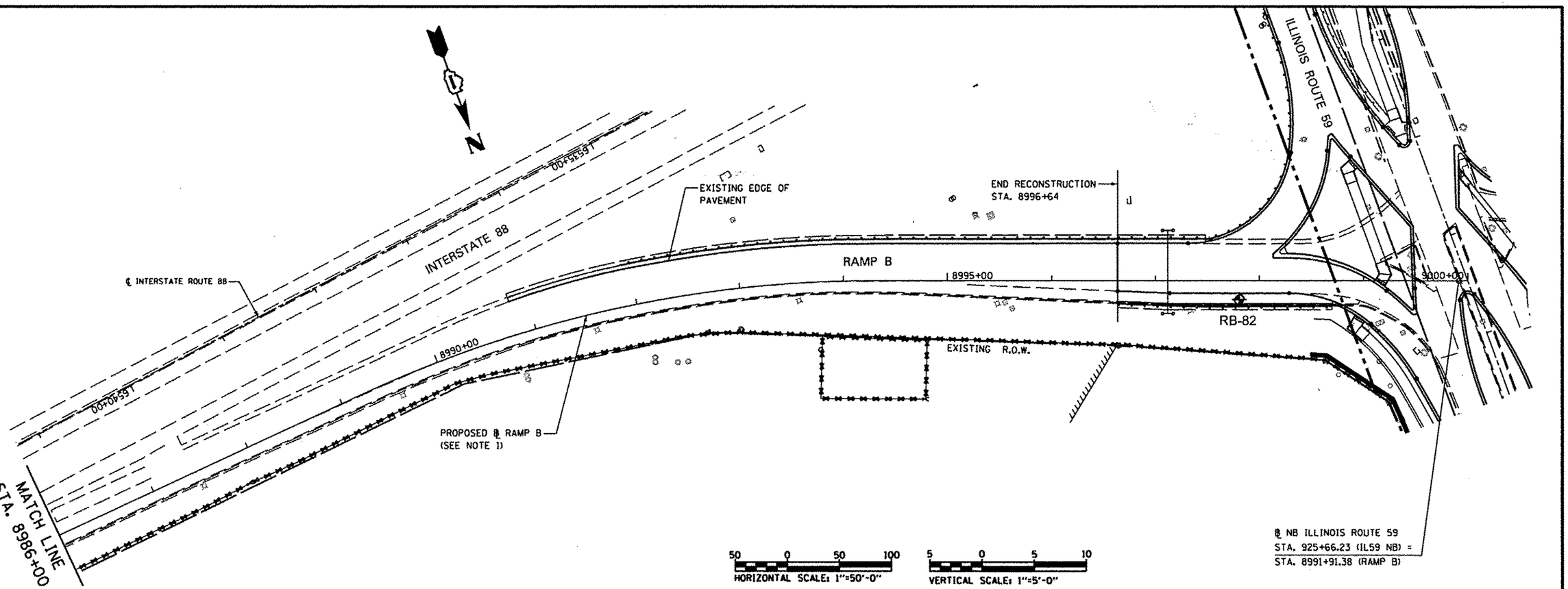
Geo Services, Inc. Geotechnical, Environmental & Civil Engineering 805 Estberg Court, Suite 204 Hoffman Estates, Illinois 60169 (630) 295-2638	USER NAME =	DESIGNED - RWC	REVISED -
		DRAWN - RWC	REVISED -
	PLOT SCALE =	CHECKED - AJP	REVISED -
	PLOT DATE =	DATE - 5/17/2012	REVISED -

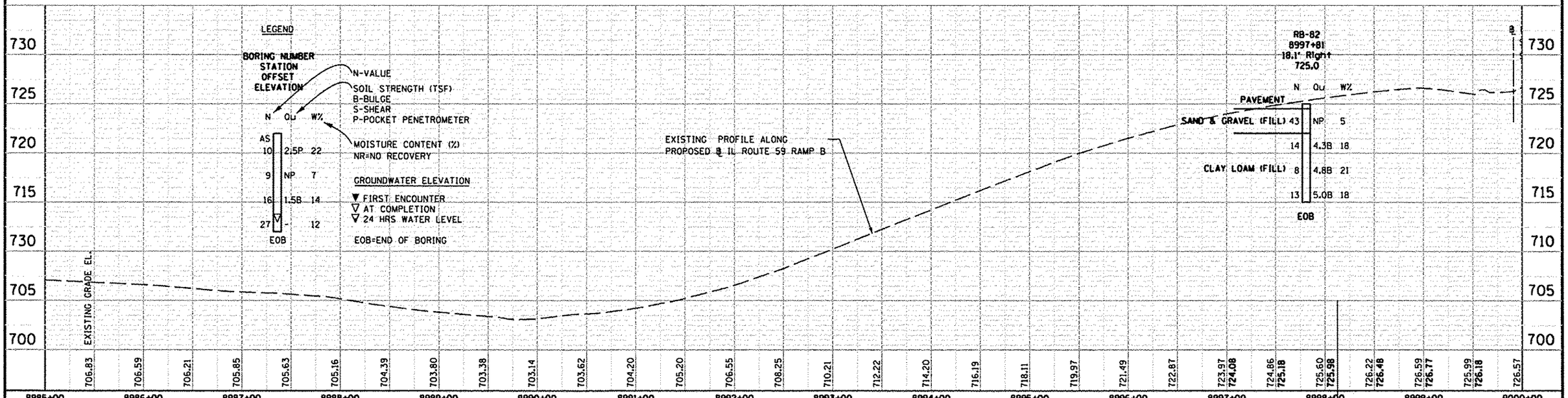
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

SOIL BORING PLAN / PROFILE – RAMP B

SCALE: AS SHOWN | SHEET NO. 2 OF 3 SHEETS | STA. 8972+00 TO STA. 8986+00

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
338/IL 59	4112 & 1131 WRS-5	DUPAGE	963	696
		CONTRACT NO. 60131		
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		





PLAN — DRAFTED, PLOTTED, ALIGNMENT CHECKED, GRADES CHECKED, STRUCTURE DETAILED, CADD FILE NAME, NOTE BOOK, NO., BY, DATE

PROFILE — DRAFTED, PLOTTED, GRADES CHECKED, STRUCTURE DETAILED, NOTE BOOK, NO., BY, DATE

Geo Services, Inc.
Geotechnical, Environmental & Civil Engineering
805 Asherst Court, Suite 204
Naperville, Illinois 60565
(630) 355-2838

USER NAME =
PLOT SCALE =
PLOT DATE =

DESIGNED - RWC
DRAWN - RWC
CHECKED - AJP
DATE - 5/17/2012

REVISED -
REVISED -
REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

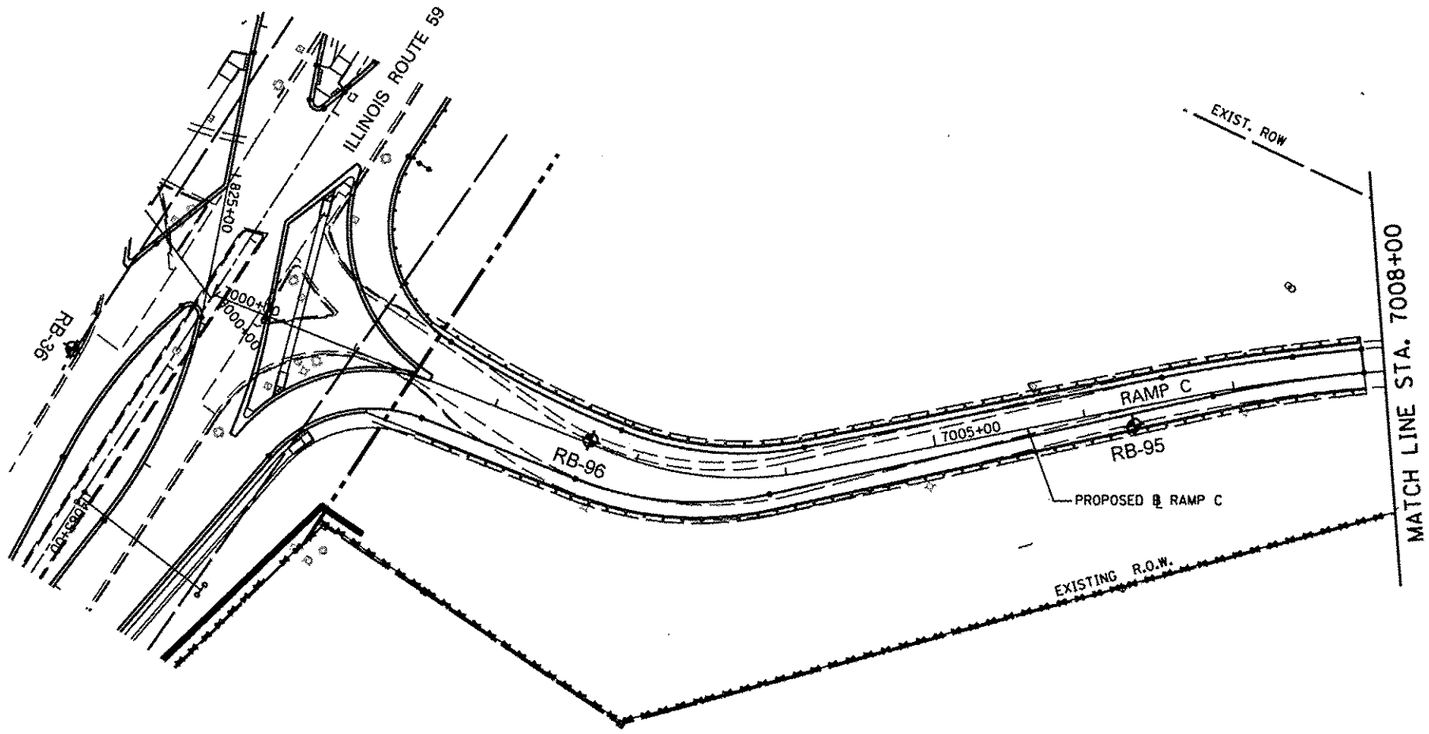
SOIL BORING PLAN / PROFILE – RAMP B

SCALE: AS SHOWN | SHEET NO. 3 OF 3 SHEETS | STA. 8986+00 TO STA. 9000+00

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
338/IL 59	(112 & 113) WRS-5	DUPAGE	963	697
		CONTRACT NO. 60131		

FED. ROAD DIST. NO. | ILLINOIS | FED. AID PROJECT

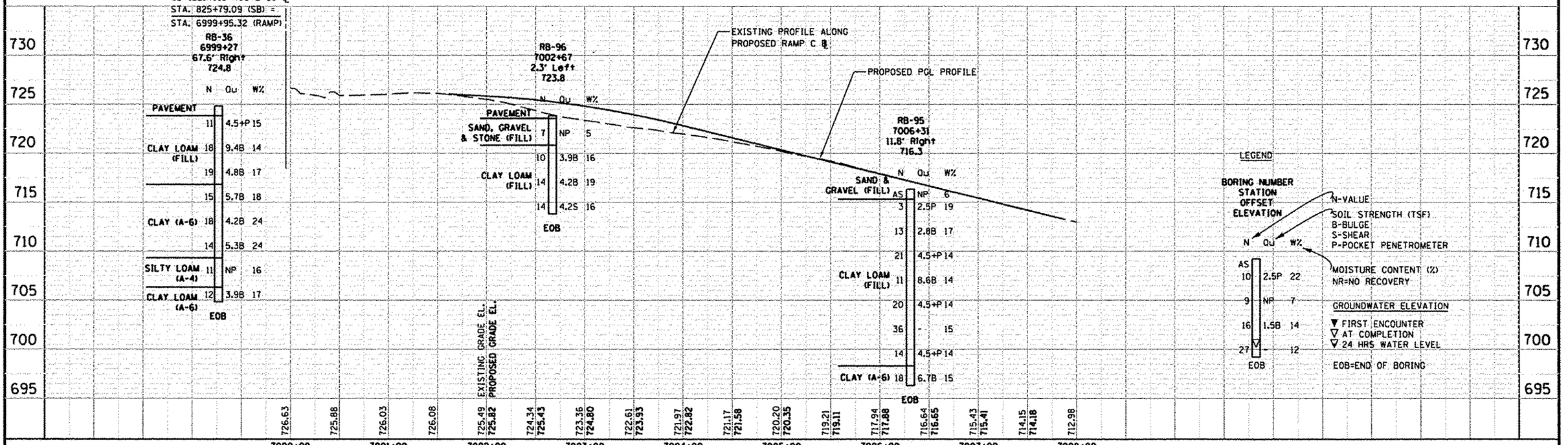
PLAN
SURVEYED
PLOTTED
ALIGNMENT CHECKED
GRADES CHECKED
NOTE BOOK
NO.
DATE
BY



HORIZONTAL SCALE: 1"=50'-0"

VERTICAL SCALE: 1"=5'-0"

PROFILE
SURVEYED
PLOTTED
GRADES CHECKED
NOTE BOOK
NO.
DATE
BY
STRUCTURE NO(S)THIS SHEET



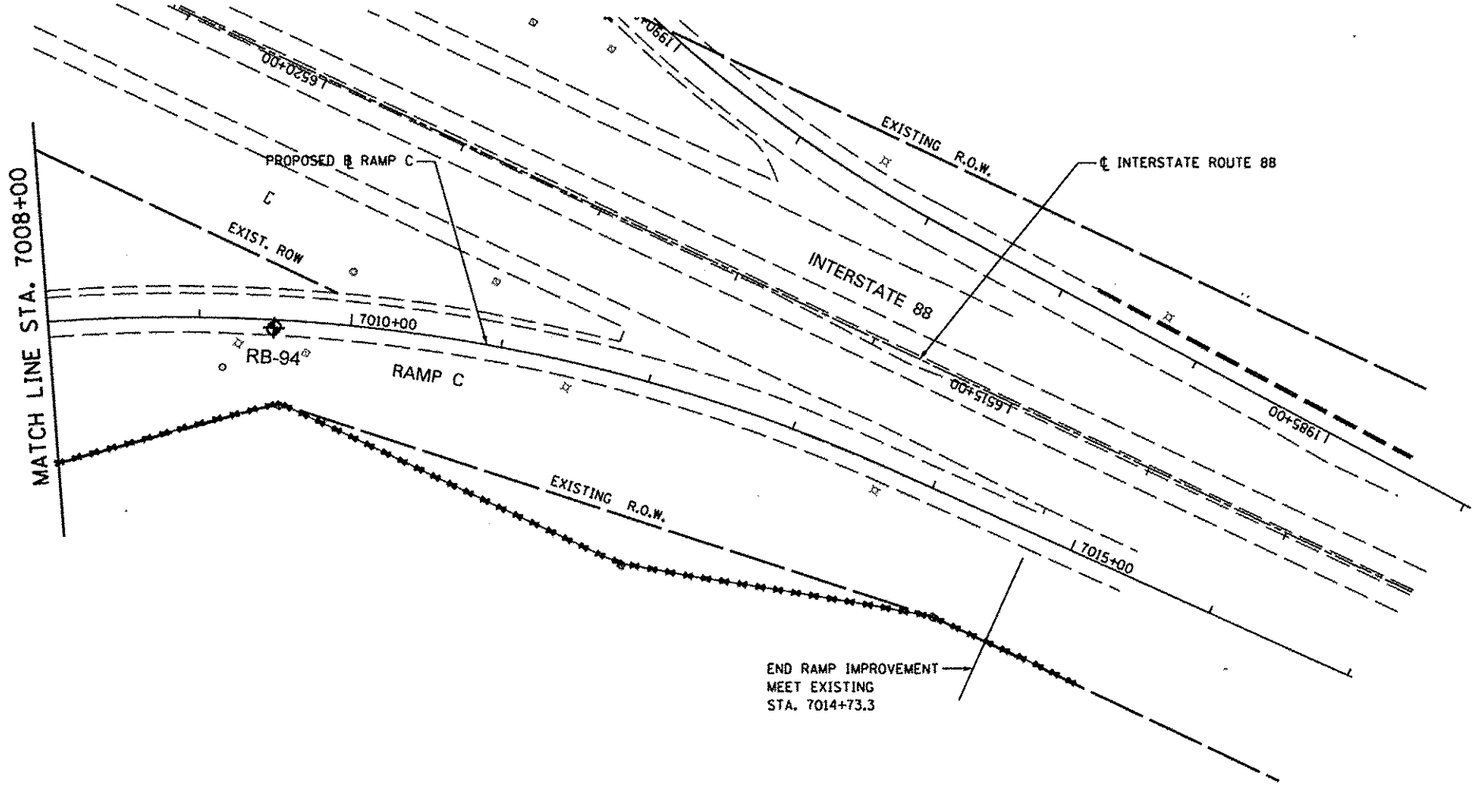
Geo Services, Inc.	USER NAME =	DESIGNED - RWC	REVISED - 7/11/2012
Geotechnical, Environmental & Civil Engineering		DRAWN - RWC	REVISED -
805 Amherst Court, Suite 204	PLOT SCALE =	CHECKED - AJP	REVISED -
Naperville, Illinois 60565	PLOT DATE =	DATE - 5/17/2012	REVISED -
(630) 355-7838			

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

SOIL BORING PLAN / PROFILE – RAMP C

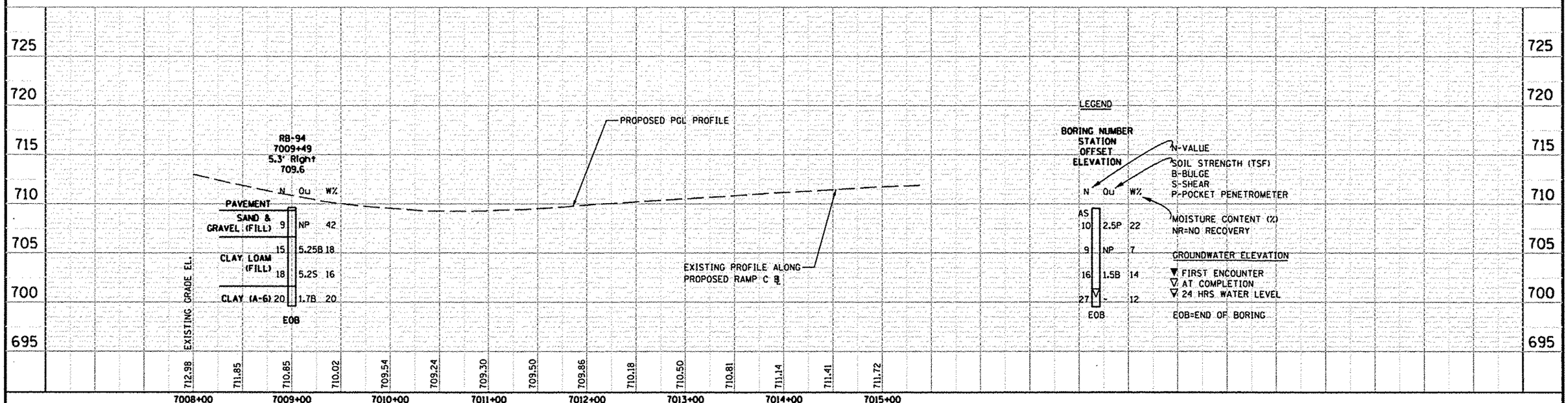
SCALE: AS SHOWN | SHEET NO. 1 OF 2 SHEETS | STA. 7000+00 TO STA. 7007+86

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
338/IL 59	(112 & 113) WRS-5	DUPAGE	963	698
		CONTRACT NO. 60131		
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		



HORIZONTAL SCALE: 1"=50'-0"

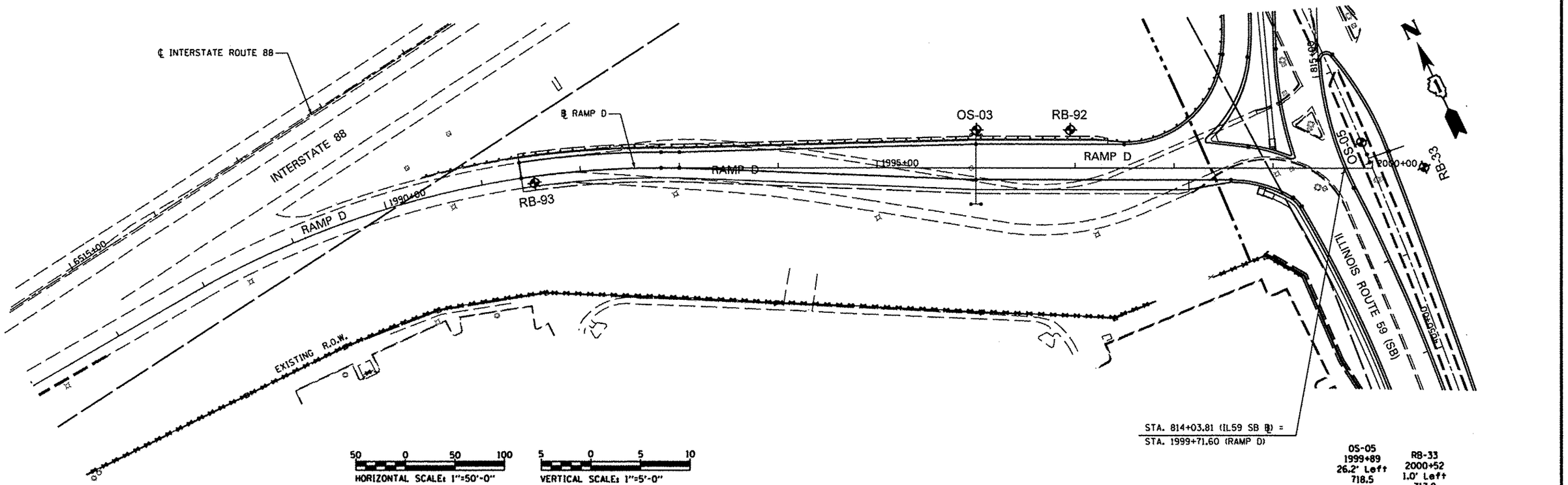
VERTICAL SCALE: 1"=5'-0"

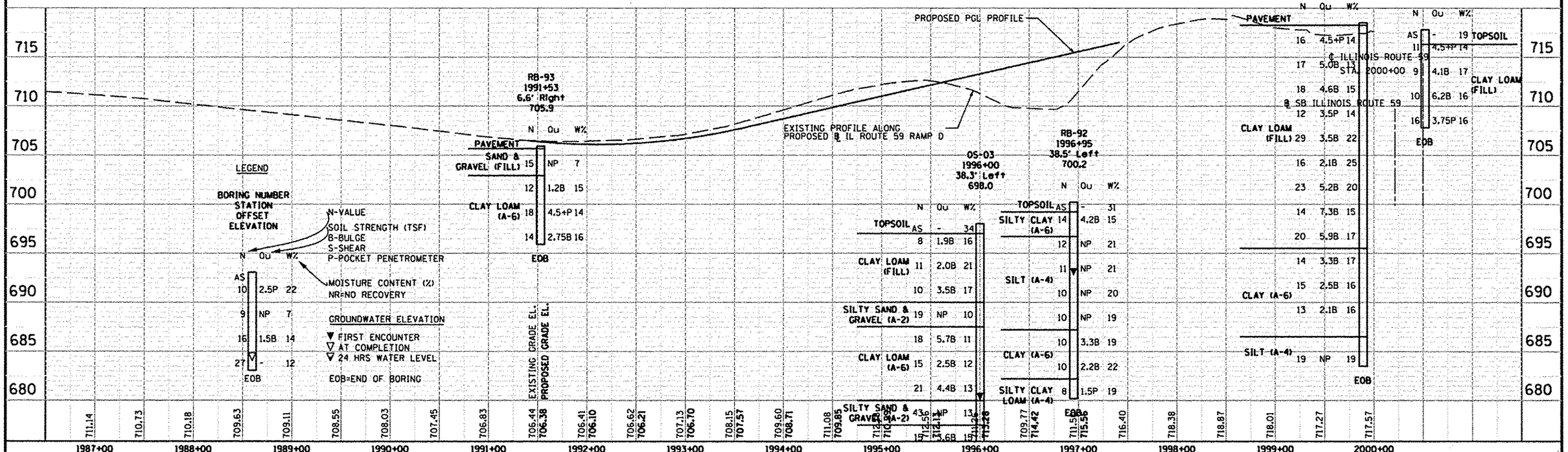


Geo Services, Inc. Geotechnical, Environmental & Civil Engineering 805 Aanenson Court, Suite 204 Naperville, Illinois 60565 (630) 355-2838	USER NAME =	DESIGNED - RWC	REVISED -	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	SOIL BORING PLAN / PROFILE – RAMP C	F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
		DRAWN - RWC	REVISED -			338/IL 59	1112 & 1131 WRS-5	DUPAGE	963	699
	PLOT SCALE =	CHECKED - AJP	REVISED -					CONTRACT NO. 60131		
	PLOT DATE =	DATE - 5/17/2012	REVISED -		SCALE: AS SHOWN SHEET NO. 2 OF 2 SHEETS STA. 7000+00 TO STA. 7007+86	FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		

PLAN — SURVEYED / PLOTTED / ALIGNMENT CHECKED / GRADES CHECKED / STRUCTURE NO(S) ASSIGNED / CADD FILE NAME / NOTE BOOK / NO. / BY / DATE

PROFILE — SURVEYED / PLOTTED / GRADES CHECKED / STRUCTURE NO(S) ASSIGNED / NOTE BOOK / NO. / BY / DATE





Geo Services, Inc. Geotechnical, Environmental & Civil Engineering 805 Lakehurst Court, Suite 204 Naperville, Illinois 60563 (630) 355-2838	USER NAME =	DESIGNED - RWC	REVISED - 7/11/2012	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	SOIL BORING PLAN / PROFILE – RAMP D
		DRAWN - RWC	REVISED -		
	PLOT SCALE =	CHECKED - AJP	REVISED -		SCALE: AS SHOWN | SHEET NO. 1 OF 1 SHEETS | STA. 1991+40 TO STA. 2000+00
	PLOT DATE =	DATE - 5/17/2012	REVISED -		

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
338/IL 59	4112 & 1131 WRS-5	DUPAGE	963	700
		CONTRACT NO. 60131		
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		